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THE TEACHING OF GASTRO-ENTEROLOGY AND PROCTOLOGY*

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DETROIT

Those of us who have attended the sessions of our section since its establishment in 1916 feel that it has more than justified its existence. The birth of the section occurred after a long and stormy, and not to say discouraging, struggle against unexpected, unwarranted and plainly hostile opposition.

The growth in scope and importance of the specialties represented was so great, however, and the demand for an outlet for the discussion of their problems so insistent, that the formation of this section could no longer be opposed or denied.

It has been a source of gratification to those who have had the founding and development of the section at heart to note, not only the numbers in attendance at these annual gatherings, but to observe that men high in the estimation of the Association and prominent figures in the medical world have been regular attendants and participants in its scientific deliberations.

The interest of the profession in our fields of special medical endeavor is in direct relation to the demand of the public for specialized professional attention for the relief of diseases which come within the scope covered by the activities of the Section on Gastro-Enterology and Proctology.

That the demand for specialized service is increasing will be admitted by all. That practititioners of medicine and surgery have been endeavoring to equip themselves properly to cover these fields satisfactorily is evidenced by the many requests we receive for postgraduate instruction along these lines. The public for a number of years has been evincing an increased interest in health and medical matters generally, and an increasing percentage are insisting on special service for special ailments.

Physicians engaged in general practice are constantly being requested by their patients for information as to whether there are not specialists in this or that disease, and if so, they wish to have the benefit of their special knowledge. As a result of this demand, and coincidently on account of the rapid strides which the study and practice of medicine have made, specialization has come into existence.

Among the organs particularly prone to a multiplicity of pathologic disturbances, those of the gastro-enterologic tract take high rank. The American public in particular has been more careless regarding the ingestion of food, its digestion when taken, and the elimination of its waste products, than any other people. As a result of a demand thus created, the special fields of gastro-enterology and proctology were early opened for specialization. That this demand has not yet been satisfied and that the field is still a broad one is evidenced by the increased interest being shown by students of medicine and practitioners alike.

The medical literature shows an increasing number of contributions on gastro-enterologic and proctologic subjects, and more demands are being made on the teaching institutions for special instruction than ever before.

For the benefit of those who continue to place obstacles in our path, let it be said that we will continue to fight for "a place in the sun" as long as the public can be benefited by the specialized service which we are prepared to give.

There has been a gratifying increase in the number of medical teaching institutions that impart special training in gastro-enterology and proctology to their students. The number of important general hospitals that find it necessary to include gastro-enterologists and proctologists on their staffs is also on the increase. Practitioners who seek postgraduate instruction in these branches almost outnumber those seeking for special instruction in any of the other limited specialties.

Those men who seek special instruction will not be satisfied with ampitheater instruction and didactic lectures, but want the closest personal contact with both teacher and patient that it is possible to secure.

Individual instruction in history taking, diagnosis, laboratory technic and in the medical and surgical treatment of gastro-enterologic and proctologic patients is of the utmost importance. The closest personal contact, which formerly existed between the good old preceptor and his student, had many arguments to recommend it.

The man who seeks to become a specialist in our fields should secure as near that type of personal contact as is possible for us to bestow. If each Fellow of the Association, a member of this section, could provide this type of personal postgraduate instruction constantly to two or three physicians, what a boon it would be to those earnest individuals who really want to be specialists, and do not receive the type of instruction that they wish from the short course postgraduate school type of instruction.

All gastro-enterologists have developed from keen, progressive internists. To be a successful proctologist, it is of prime importance not only that one is experienced in the general practice of medicine; one must also have served a thorough surgical apprenticeship.

* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

Part of the physician's duty is to treat his patients, part to indulge in original research work, but of equal importance is his obligation to impart his knowledge to others of his profession. That this applies to undergraduate teaching goes without saying. That it applies with greater force in postgraduate teaching is more to the point.

On those few who practice the specialties represented by our section, to whom have been given specialized knowledge and special skill, a profound obligation has been laid. This obligation is to teach, train, encourage and assist those who are entering the study of our specialties that they may not only be put in possession of what knowledge we have gained, but qualified to carry it on from our furthest point of advance.

If those Fellows of the American Medical Association registered in this section, who have given so much to American medicine by their contributions to the Association's scientific activities, will continue to do so, they will contribute a great deal to the world's sum of gastro-enterologic and proctologic knowledge. If, in addition, they will conscientiously give of their time and knowledge to the special personal training of those who are to be their successors in the march of progress, they will then have fulfilled by far their largest and highest sphere of scientific and professional activity.

Kresge Building.

PNEUMOPERITONEUM AS AID IN THE ROENTGENOLOGIC DIAGNOSIS OF LESIONS OF URINARY TRACT*

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ST. LOUIS

While the roentgen ray has found its place among the many aids in diagnosis of the urinary tract, still its use in the past has been in many respects very limited. The advent of pneumoperitoneum, or gas introduced into the abdominal cavity, as an aid in the diagnosis of lesions of the urinary tract has enhanced the value of the roentgen ray many fold. Since the first introduction of the method into this country by Stewart and Stein [1] of New York in 1919, the method has been taken up with great enthusiasm, and hundreds of examinations have been made by many different men.

As is customary in the evolution of every new method of diagnosis, conceptions of the normal must be acquired, and only after a sufficient number of examinations can any inference be drawn as to pathologic conditions. A long time must necessarily elapse and the results of many different workers be correlated, before the full value of this method will be known.

The stage has arrived, however, in the natural development of the process where general examinations of the intra-abdominal organs can be displaced by examinations of more specific character, taking into account the lesions and pathologic conditions which in the past have proved amenable to this method of examination.

* Read before the Section on Urology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Stewart, W. H., and Stein, A.: Am. J. Roentgenol. 6:533 (Nov.) 1919.

THREE GROUPS

On reviewing our cases of pneumoperitoneum, those in which it has been of distinct advantage fall very closely into three groups:

The first group constitutes those cases in which information is desired concerning the presence, position, size, form or outline, mobility and attachments of the kidney. At times, when the patient cannot undergo cystoscopy, the actual presence or absence of a kidney is a difficult matter to determine. The kidney may have been removed at a former operation or may be completely destroyed by a pathologic process. Usually the kidneys are found lying close to the spine in the region between the last dorsal and third lumbar vertebrae; the right is usually somewhat lower than the left, but in a considerable number of instances we have found this condition reversed—the left being lower than the right. This may be in association with pathologic enlargement of the spleen, causing mechanical displacement, or may be present in perfectly normal individuals. The kidneys vary in size with the size of

Fig. 1.—Tuberculosis of spleen and left kidney.

the individual, but they are usually of the same relative size; in no instance has marked variation in size in the two kidneys been noted in a normal individual. Any distinct variation in the size of the two kidneys can be readily detected, and should be considered as definitely pathologic. The kidney outline can be clearly seen, and any pathologic condition which affects the outline of the kidney can be detected. Tuberculosis of the kidney with destruction of the kidney substance, small carcinomatous nodules studding the surface of the kidney, too small to make definite palpable masses and yet definite evidence of pathology, all have been demonstrated by this method of examination.

Congenital cystic kidney, both by its enlargement and by its lobulated appearance, can be detected. The normal range of motion of the kidneys varies from slight displacement during respiration to a wide range of mobility from changes in position. Both extremes have been noted in otherwise apparently normal individuals. The present day conception of the pathology of mov-

able kidneys, which determines the extent of pathology present by the amount of obstruction of the ureter caused by the displacement, would seem to be confirmed by this observation. In pyogenic inflammations of the kidney, definite destruction and adhesions of the kidney to the surrounding organs can be seen. Occasionally

Fig. 2.—Sarcoma of left kidney in anteroposterior view, showing extent of growth and separation of the spleen. In the retroperitoneal position, the mass was shown involving the kidney and almost obliterating the prevertebral clear space.

adhesions form to the kidney from surrounding pathologic conditions, and we have been able to demonstrate adhesions to the left kidney from a carcinoma of the descending colon. The kidney was shown to be only secondarily involved, and the condition, which was thought to be a perinephritic abscess, was definitely determined to be a carcinoma of the descending colon.

In the second group the method is of use in determining the origin and attachments of all intra-abdominal masses. Definite palpable masses may be visualized, their origin determined and the extent of their involvement of surrounding structures demonstrated. Tumor masses of the liver—carcinoma, cirrhosis; pathologic enlargements of the gallbladder due to gallbladder disease and stones; ruptured gallbladder or appendix with surrounding reaction resulting in an inflammatory mass; carcinoma or cyst of the head of the pancreas; fibroid of the uterus; fecal impactions in the intestine—all are examples of conditions in which we have found the method helpful. The mere establishment of the identity of a palpable mass as a displaced but otherwise normal organ may be sufficient to clear up an obscure diagnosis. Displacements of the kidneys and spleen are notable examples of this condition. Falling within this group, and of special interest in the diagnosis of kidney lesions, is the detection of retroperitoneal masses, both those involving the kidney and those closely associated with, but not taking origin from, its structure. By placing the patient in the retroperitoneal position,[2] the retroperitoneal character of an abdominal mass can be definitely determined. This consists in placing the patient, previously somewhat overinflated, in the prone position, chest and thighs supported by two blocks, which takes all pressure off of the abdomen and allows the anterior abdominal wall to sag freely forward. The stomach, intestines and all organs with mesenteric attachment fall forward, leaving the retroperitoneal space clearly visible. A prevertebral clear space is produced which renders the presence of any retroperitoneal mass readily visible. Sarcoma, hypernephroma or any other tumors of the kidney can be clearly shown. The relation to the kidney of retroperitoneal masses, either metastatic new growths in the retroperitoneal space or inflammatory masses, can be definitely shown. Carcinoma of the retroperitoneal lymphatics closely associated with the kidney; perinephritic abscess; psoas abscess forming a definite palpable mass on the lower abdomen; carcinoma of the descending colon infiltrating the retroperitoneal space—all are examples of conditions which we have encountered and in which the method was found most helpful.

The third group is composed of special conditions peculiar to urinary tract examination. Examination of the kidneys for stone by this method should be undertaken only after the other methods have failed to reveal the desired information. Under certain conditions, when there is a suspicious shadow over the kidney area and when the ureters cannot be catheterized and injected, this method is quite useful. Occasionally even after injection of the kidney pelvis there remains some doubt as to the character of a shadow—when the shadow falls outside of the kidney pelvis. Under these conditions, examination by the aid of pneumoperitoneum is almost indispensable to a correct diagnosis. When there is a very large round stone, presumably in the pelvis of the kidney, which might have a ball valve effect and cause retention of injected material in the pelvis, I feel that pneumoperitoneum is by far the most desirable procedure, since I do not consider the filling of

Fig. 3.—Psoas abscess differentiated from a perinephritic abscess, showing its separation from the kidneys. There is destruction of the psoas muscle, which permits the kidneys to flare out from the spine on each side—a distinctly pathologic position.

the abdomen with air attendant with as much danger as cystoscopy and ureteral injection. The differentiation from gallstones becomes quite a simple matter.

In the examination of the ureters a great advantage can be gained by observing the opaque material as it is being injected. Unless the patient is very stout, this can readily be done. When a stone blocks the ureter, when

2. Sante, L. R.: The Retroperitoneal Position in the Detection of Retroperitoneal Masses by the Aid of Pneumoperitoneum, Am. J. Roentgenol. 8: 129 (March) 1921.

there is a definite kink in the ureter, or when a pathologic stricture is present, the condition can readily be observed; and, what is even of more importance when such lesions occur, the emptying of the pelvis and ureter can be noted. For studying the injected pelvis, the lateral view is sufficient; but for involvement of the ureter, the retroperitoneal position is the most advantageous.

Fig. 6.—Urinary stone seen in the lateral position localized to the kidney area. Where a small shadow appears outside the injected kidney pelvis, pneumoperitoneum is of great aid in localizing the shadow to the kidney area.

For the examination of the bladder, the method is of greatest value in determining its relationship to pelvic masses. Examination of the bladder for tumor, and observation of the elasticity of the bladder wall can be readily carried out by inflation of the bladder with air in conjunction with pneumoperitoneum. Diverticula of the bladder do not show well with this method of examination unless quite large, and even then injection of the bladder with opaque mediums gives much the best conception of the condition.

Demonstration of the prostate is often possible in conjunction with air inflation of the bladder, but it is doubtful whether the simple inflation of the bladder does not give as good results. In one case the diagnosis of a mass springing from below the peritoneum and posterior to the bladder was made, which at operation proved to be a pelvic abscess arising from the seminal vesicle.

In this outline of lesions amenable to examination by pneumoperitoneum, it should be borne in mind that our experience is limited to about 110 cases. As the technic and methods of examination improve and our experience becomes more extensive, still other conditions may present themselves in which pneumoperitoneum can be employed with advantage.

METHOD OF PROCEDURE

It would hardly seem complete to dismiss the subject without brief mention of our present technic and a statement as to some constitutional conditions under which pneumoperitoneum has been induced.

After a thorough evacuation of the bowels and bladder and the administration of one-sixth grain of morphin, the patient is prepared for inflation. Tincture of iodin is applied over the left lower quadrant of the abdomen, and an ordinary lumbar puncture needle is inserted, directed slightly upward and inward. A very simple apparatus is used, consisting of the pump of a Potain aspirator connected by tubing and suitable connectors to the needle, with a rectal drip interposed as a trap (vent hole plugged) to prevent introduction of foreign material from the pump. Everything is sterilized but the pump. No attempt is made to measure the quantity or pressure of the air, and no sterilization or filtration of the air is necessary. By using a stethoscope over some remote portion of the abdomen, the inrushing air heard with each stroke of the pump is sufficient evidence of the presence of the needle in the abdominal cavity. We use as a criterion of proper distention the slight rounding of the abdomen; development of a tympanitic note, and the appearance before the fluoroscope. We use air in place of oxygen, or a mixture of oxygen and carbon dioxid, and at the conclusion of the examination deflate by introduction of another needle. Since we have used this method, no difficulty has been encountered in inflation, and very little discomfort has been experienced by the patient.[3]

CONDITIONS IN WHICH PNEUMOPERITONEUM HAS BEEN INDUCED

Some of the coexisting pathologic conditions and lesions under which pneumoperitoneum has been induced may be briefly set forth. We have used it in advanced diabetes without ill effect and in mild cardiac lesions, but never when marked signs of decompensation were present. In general carcinomatosis and tuberculous peritonitis it seems to do no harm, and when adhesions are present either postoperative, inflammatory or malignant, no damage has been noted. The inflation of the abdomen has never resulted in the rupture of such adhesions, even when recently formed in association with ruptured gallbladder or appendix, or subdiaphragmatic inflammations. The lowest blood

Fig. 7.—Same case as that illustrated in Figure 6, showing stone localized to kidney area in the retroperitoneal position. More than one position is essential in order absolutely to localize a stone.

pressure existing prior to injection in any case in which it was preformed was 80 systolic, associated with carcinoma of the head of the pancreas and obstruction of the common duct; the highest was 180 systolic, associated with nephritis and edema. One patient had a thoracic aneurysm, and in another an aneurysm of the

3. For a more detailed account of the technic, the reader is referred to Sante, L. R.: Missouri State M. J., April, 1921; J. Radiol. 2 (June) 1921.

abdominal aorta was detected at the examination. In one patient, owing to faulty apparatus, the needle was inserted into a small abdominal artery. The needle was withdrawn, the patient put to bed and, showing no ill effects, was subjected to a successful pneumoperitoneal examination two days later. One patient suffering with extensive pulmonary tuberculosis had a slight pulmonary hemorrhage four days after an oxygen inflation. The patient stated, however, that she had had many previous hemorrhages. Other than these we have had no ill effects.

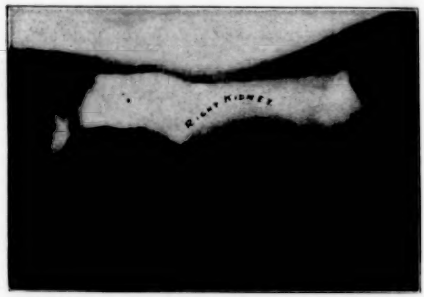

Fig. 8.—Large stone seen in pelvis of kidney. In such cases, pneumoperitoneal examination is to be preferred to injection of the pelvis of the kidney with opaque salts.

On taking up pneumoperitoneum, we tabulated certain conditions under which we felt pneumoperitoneum should not be induced, merely dictates of good judgment, and have had no reason, to date, to change our opinion: (1) cardiac lesions with marked decompensation and edema; (2) advanced cases of nephritis with edema and very high blood pressure; (3) acute intra-abdominal lesions, and (4) acute pulmonary lesions, such as pneumonia.

In reviewing the literature it is surprising to find such slight mention of the subject. The kidneys are given passing mention in many papers,[4] but only one short paper of a few hundred words by Rautenberg[5] is devoted entirely to the study of kidney examination by pneumoperitoneum. He considers the lateral position the best for study of the kidney, and devotes most of the paper to a technic for securing an accurate measurement of the size of the kidneys. He mentions tuberculosis of the kidney, an atrophic kidney and pyelitis; he also has seen stones in the kidney, but makes no mention of injection of the ureters in connection with this examination.

It seems unfortunate that more observations have not been made on the urinary tract with pneumoperitoneum, since its use is undoubtedly of great advantage in diagnosis. The fault, no doubt, lies in the fact that its advantages are not widely known. As the method comes more into general use, I look for a great increase in the list of conditions in which its use will be of aid.

4. Goetze, O.: Die Röntgendiagnostik bei gasgefüllter Bauchhöhle; eine neue Methode, München. med. Wchnschr. **65**: 1275, 1918. Rautenberg, E.: Roentgenographie der Leber, der Milz und des Zwerchfells, Deutsch med. Wchnschr. **46**: 1205, 1914. Faschingbauer, H., and Eisler, E.: Diagnostische Erfahrungen mit dem artifiziellen Pneumoperitoneum, Wien. klin. Wchnschr. **33**: 853 (Sept. 23) 1920.

5. Rautenberg, E.: Pneumoperitoneale Röntgendiagnostik der Nieren, Berl. klin. Wchnschr. **45**: 203 (Feb. 20) 1919.

CONCLUSIONS

1. Pneumoperitoneum can be produced without great discomfort to the patient, and with comparative safety.

2. It can be used to determine the presence, position, size form or outline, mobility and attachments of the kidney.

3. The demonstration of intra-abdominal masses and the determination of their origin and attachment is possible.

4. The retroperitoneal character of masses can be established, and their involvement of the kidney determined.

5. Shadows suspicious of stone over the kidney area can be definitely localized to the kidney.

6. Injection of opaque material into the ureter and kidney pelvis can in most instances be observed during its injection, giving valuable information as to obstruction from kink or stricture of the ureter.

7. Observations on the bladder wall are possible, and the connections of pelvic masses to the bladder can be shown.

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ABSTRACT OF DISCUSSION

DR. LOUIS LEFRAK, New York: There are advantages and disadvantages in the pneumoperitoneum method of diagnosing urinary diseases. One advantage over the ordinary roentgenographic method is that by getting the location, size and shape we not only find the guilty organ but we can often determine the pathology. The disadvantages are quite numerous: In the first place, there are the usual contraindications for pneumoperitoneum: valvular heart disease; acute abdominal or pelvic lesions; adhesions and chronic alcoholism. A second disadvantage is: Why resort to the somewhat drastic method of pneumoperitoneum when we can get good roentgenograms and pyelograms with sodium bromid and thorium nitrate solutions? The chief disadvantage, however, is that it is mainly institutional—that it can best be done at a hospital. If the method could be so simplified that it could be done as routine office work it would be of general utility. At present, it is a very expensive procedure, takes a great deal of time, is not without danger in inexperienced hands, and is limited in its practicability because of these things.

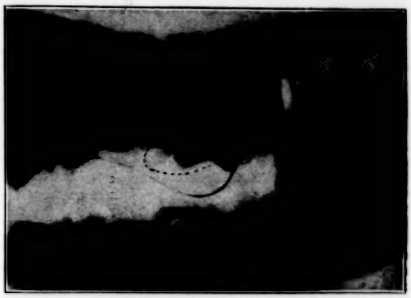

Fig. 9.—Injection of the ureter and pelvis as seen in the retroperitoneal position. The injected material can be followed under the fluoroscope in this position. Kink or obstruction of the ureter can be noted.

DR. ABRAHAM HYMAN, New York: In females, abdominal puncture can be dispensed with by using the method of intrauterine abdominal insufflation described by Dr. Rubin last

year. Dr. Rubin reported about 200 cases a few months ago without any untoward results. The method is very simple; a metal catheter is introduced into the cervix, and the air from an oxygen tank is allowed to flow through into the abdominal cavity. In the cases with closed tubes there will be a regurgitation of the air alongside the catheter. The pressure to which the gas is subjected during the insufflation is under the control of a mercury manometer, which is part of the apparatus used. The highest pressure in cases in which the tubes are nonpatent should not exceed 200 or 220 mm. of mercury. There has been some objection raised regarding this method, on account of the possibility of spreading a latent pelvic infection. This danger is very remote if the patients are carefully examined prior to injection. The procedure takes only a few minutes, and does away with the dangers of abdominal puncture.

Dr. Benjamin S. Barringer, New York: I wish to report one fatality following air inflation of the peritoneum in a patient with carcinoma. The injection was made with aseptic precautions; some days after the injection the patient died. I saw the necropsy performed by Dr. Ewing. The patient had a generalized peritonitis, the infection manifestly entering by way of the needle. I presume this patient, because of the advanced carcinoma, was peculiarly susceptible to infection.

Dr. Herman S. Kretschmer, Chicago: The procedure described by Dr. Sante is a very simple one. However, I can see possibilities of danger in the tendency to resort to this method rather than putting the patient through the present standardized routine. I think there is a group of cases in which pneumoperitoneum is of value, particularly for differentiating retroperitoneal conditions; I believe it will help out there, but I do not believe it should be used in the place of the usual diagnostic procedures—such as roentgen ray, shadowgraph, catheters, pyelograms, etc. The same tendency, I think, will creep into this method as a short cut, that has been observed in the use of cystograms. We find many cases subjected to cystograms first, instead of last, using it instead of the present diagnostic procedures, whereas it should be used supplementary to them. I think the method of pneumoperitoneum should be used as a last resort but not instead of routine examinations.

Dr. Le Roy Sante, St. Louis: I agree with the views expressed by Dr. Kretschmer. This method should not be used until the other established methods have been tried, for its indiscriminate use can only lead to failure and disappointment and bring into discredit this method of examination. The death from pneumoperitoneum referred to was certainly very unfortunate and may have been due to the extreme condition of the patient. However, I have also a death to report, not from pneumoperitoneum but from the injection of the pelvis and ureter with sodium bromid in a case in which a large pelvic stone cause a retention of injected material by a ball valve effect. The patient developed an infection which resulted in death. I do not consider the inflation of the abdomen with air as attendant with as much danger in such a case as the injection of the ureter and pelvis with opaque material. The only other death that has come to my attention was one due to injection of oxygen directly into the spleen. This case was manifestly a technical error. At present it is impossible to say just what the possibilities of this method will be. It is my impression, however, that its greatest usefulness to the urologist will be in the detection of retroperitoneal masses: determining their extent and relationship to the kidney, and in the localization of stones to the kidney area, in those cases in which the ureters cannot be catheterized or when the existing condition renders this procedure inadvisable.

Hyperplasia of Papillary Muscles in Cardiac Syphilis.—A fibroid lesion very frequent in cardiac syphilis but also seen in nonsyphilitic cases is a more or less diffuse interstitial hyperplasia in the papillary muscles, a lesion which results in a restriction of the columnæ carneæ with, of course, more or less obstruction of normal valve mobility.—Harlow Brooks, *Am. J. Syphilis* **5**:225, 1921.

SCLEROSING NONSUPPURATIVE OSTEOMYELITIS AS DESCRIBED BY GARRE

REPORT OF CASE, WITH ROENTGENOGRAPHIC AND PATHOLOGIC FINDINGS AND REVIEW OF THE LITERATURE *

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The rarity of this type of sclerosing nonsuppurative osteomyelitis as described by Garrè [1] of Tübingen prompts me to present a review of this interesting bone manifestation, and to record a case which has come under my recent observation.

According to Garrè, the sclerosing types of osteomyelitis cases are those in which there is merely an enlargement and a thickening of the bone, without the occurrence of suppuration and fistulous formation.

Garrè's first description of this unusual bone condition was published in 1891, and the cases reported were seen in the Tübingen clinic of Professor Bruns.

In the large majority of cases, the onset of the disease is acute, accompanied by a high fever, swelling of the affected limb, pain at the site of the bone lesion, and considerable infiltration of the soft parts; but the skin over the affected bone is not reddened, and there is no formation of pus. With the subsidence of the temperature the swelling of the soft parts disappears, and there remains only the permanent osseous enlargement.

It is interesting to note that, in 1879, Kluppel reported the occurrence of nonsuppurative osteomyelitis occurring in a boy of 12 years, following a traumatism of the right thigh. The acute onset was accompanied by a high temperature, local tenderness at the site of the injury, and swelling of the soft parts. The diagnosis of osteomyelitis was made, and the frequently prescribed method of Kocher, in vogue at that time, of injecting a 2 per cent. solution of phenol (carbolic acid) into the inflamed and swollen periosteum was administered, and in addition sodium benzoate was prescribed. In six days the fever subsided, and an incision of the swelling over the posterior and lower portions of the thigh was contemplated, but it was not performed, owing to the absence of fluctuation. The infiltration and swelling of the thigh gradually diminished, but the lower portion of the right femur above the condyles could be felt, permanently enlarged. Four months after the injury the affected thigh measured 5 cm. more than the normal thigh.

Although Kluppel's report antedates Garrè's classic description by twelve years, nevertheless the case undoubtedly was one of sclerosing osteomyelitis of the nonsuppurative type, and it is the first to be recorded in surgical literature.

As illustrative of the unusual occurrence of this condition, in reviewing the bibliography of osteomyelitis, I find that of the 559 cases observed in the Tübingen clinic, there were only twenty cases of the sclerosing nonsuppurative type recorded.

Cheyne,[2] in 1890, reported a case of central necrosis of the radius without suppuration, occurring in a lad of

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Owing to lack of space, this article is abbreviated in The Journal by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Garrè, C.: Beitr. z. klin. Chir. (Bruns') **10**:241, 1893.
2. Cheyne, W. W.: Tr. Path. Soc. London **41**:249, 1890.

15 years. This case differs from Garrè's, in that a sequestrum had formed, which was removed at the time of operation, but no pus formation was present.

Langer,[3] in 1904, referred to those cases of osteomyelitis which are characterized by the absence of suppuration. He speaks of the types of periostititis albuminosa or osteomyelitis serosa, and of the sclerosing nonsuppurative osteomyelitis. He records a case occurring in a lad of 12 years, distinguished by the absence of suppuration, and by marked rarefaction of the bones, suggestive of a lymphosarcoma or a myeloma.

Mauclaire,[4] refers to the statement of Kocher, who believes that a considerable number of bone sarcomas which have been cured by amputations are merely sclerosing nonsuppurative osteomyelitis of the long bones. Bruns states that in these cases spontaneous fracture may frequently result.

Klemm [5] speaks of four varieties of chronic sclerosing osteomyelitis, the first occurring without suppuration and without necrosis; the second, with suppuration; the third, with necrosis, and the fourth, with a diffuse cicatricial thickening of the periosteum and the soft parts, with "brain matter-like deposit" in the scar tissue.

Diffuse bone sclerosis is frequently associated with marked acceleration of the bone growth, resulting in lengthening and increased thickening of the bone.

Fig. 1.—Fusiform enlargement of right tibia.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis between bone sarcomas and sclerosing osteomyelitis is frequently very difficult.

In discussing bone sclerosis without necrosis and suppuration, Klemm calls attention to the thesis of Gosselin [6] in 1868, in which he describes a form of osteomyelitis chiefly characterized by proliferative processes in the bone. The bones involved showed no trace of the medullary canal, and the entire bone was transformed into a homogeneous thickened mass. Microscopically the framework of the bone structure was distinctly more dense and compact, and in certain areas the osseous substance was as hard as ivory. Two typical cases are recorded illustrating this form of osteomyelitis.

In Trendel's [7] series of 1,299 cases of osteomyelitis, there were found only fifty-four cases of the sclerosing nonsuppurative type, or 4.2 per cent. of the total number observed.

In considering this unusual type of bone involvement, our attention must at once be directed to the differential diagnosis, and the possibilities of confusing this bone lesion with the syphilitic and sarcomatous types, and also with the rare type of solid osteitis fibrosa encountered in the long bones. The differentiation is extremely difficult in some cases, and this is particularly true when the sclerosing osteomyelitis is to be diagnosed from the syphilitic involvement of the long bones.

The syphilitic osteitis and periostitis infections of bones results in the fusiform enlargement of the shaft and leads to a diffuse hyperostosis closely resembling the chronic stages of nonsuppurative osteomyelitis. The osteal night pains are common to both bone diseases, and, as in the case which came under observation, this symptom was quite misleading when the case was first observed.

The absence of other syphilitic manifestations, the gradual subsidence of the pain, and the finding of a negative blood and spinal fluid Wassermann reaction should establish the diagnosis. In bone sarcoma the problem is even more difficult, for frequently there is a previous history of trauma over the affected area. The initial rise of temperature, the absence of glandular enlargement, the infiltration of the soft parts, which is present early in the sclerosing type of osteomyelitis, the absence of cachexia and rapid loss of weight are important points in differentiating this type from malignant bone disease. A careful roentgenographic and pathologic examination should be made in every case.

In osteitis fibrosa, with or without the formation of cysts, the predominating clinical symptom is that of a spontaneous fracture, and the swelling and pain are not symptoms of which the patient complains. The temperature is usually normal in cases of osteitis fibrosa, and the pathologic process is so insidious in its onset that the occurrence of a slight trauma to the affected bone, resulting in a fracture, causes the patient to seek surgical advice.

It is the opinion of most observers that trauma cannot be considered as an etiologic factor, and that the disease is one due probably to an inflammatory process occurring in the long bones.

Here again we must call on the pathologic laboratory and the roentgen-ray examination to aid in differentiating these unusual bone conditions.

REPORT OF CASE

The interest in the case which came under my observation centers in (1) the rarity of the disease; (2) the unusually long period of the acute symptoms, manifested by pain and swelling of the soft parts; (3) the character of the fusiform osseous enlargement, resem-

3. Langer, A.: Ztschr. f. Heilk. **25**: 366, 1904.
4. Mauclaire, P.: Maladies des os: nouveau traité de chirurgie **5**, 1908.
5. Klemm, P.: Beitr. z. klin. Chir. **80**: 56, 1912.
6. Gosselin: Naud thesis, 1868.
7. Trendel: Beitr. z. klin. Chir. **41**: 607, 1903-1904.

bling a sarcomatous bone, and (4) the pathologic findings from specimens made at the time of operation.

History.—A boy, aged 9 years, born in Colorado, one of four children, whose father and mother were strong and healthy, and in whose family there was no history of tuberculosis, syphilis or cancer, had had no acute exanthems of childhood, with the exception of measles. For the last five years he had suffered from constipation, requiring the almost daily use of laxatives. The father reported that the boy had never been a sturdy, robust child, and that his weight had always been less than that of a normal child of the same age.

In June, 1918, he sustained a slight injury to the right leg by falling into a pit about 2 feet deep, striking the anterior surface of the right tibia against an iron rod. There was no abrasion of the skin at the site of the trauma, and only a slight swelling of the soft parts of the affected leg. The pain in the leg continued for twenty-four hours and then entirely subsided. From June to December, 1913, the lad was apparently well, and with the exception of the slight swelling of the leg over the anterior surface, nothing abnormal was noticed by the parents. In December he again had a trauma over the same area described in his accident of six months previous.

Within two or three hours following the second injury to the right leg, there was swelling of the soft parts, particularly marked over the anterior surface, extending down to the lower third of the leg, but there was no involvement of the angle or knee joint. Accompanying this swelling there was a rise of temperature to 100.8 F., and persistent pain over the site of the injury and radiating down to the foot and ankle, this symptom being much more severe at night, although present at all times. There was no redness over the affected limb, and there was no abrasion of the skin.

Although no careful record was kept of the temperature, the father reports that there was a rise of from 1 to 2 degrees above normal, and that the lad had restless nights and complained bitterly of pain in the right leg and right ankle. His appetite was poor, and he lost in strength and weight.

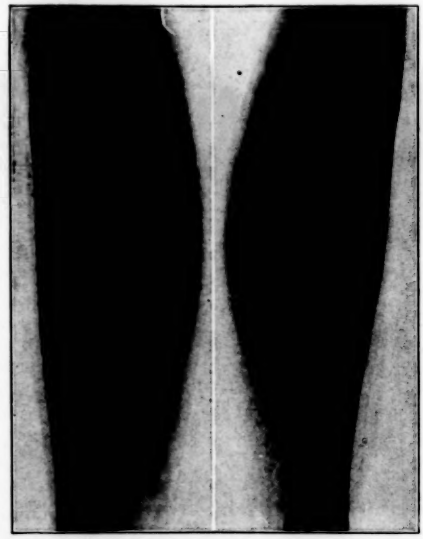

Fig. 3.—Lateral view, showing fusiform enlargement of right tibia. The medullary canal is almost entirely obliterated. The normal tibia on the unaffected side has been taken for comparison.

Examination.—July 28, 1919, when I saw him, the patient was rather poorly nourished, moderately anemic, and weighed 52 pounds. He walked with a slight limp, but without the aid of a crutch or cane. His temperature was 101 F., pulse 90, and respiration 20. There was a fusiform enlargement (Figs. 1 and 2) of the right tibia, situated over the upper and middle third, with moderate infiltration of the soft parts over this area, but no fluctuation. The skin was normal in appearance, and there was no local heat. Pain was elicited on pressure, but there was no evidence of periosteal roughening of the tibial crest, and no egg shell crackle. The inguinal glands were not enlarged.

The length of the lower extremities was the same. The measurement from the anterior-superior spine to the internal malleolus on both sides was 28½ inches. There was a half inch atrophy of the thigh on the affected side, and the calf measurements over the most prominent part of the right tibial enlargement was three-fourths inch larger than that of the left leg. There was no involvement of the ankles, knees or hip joints, and there was a normal range of motion. The spine and sacro-iliac joints were normal. No masses were to be felt in the abdomen. The heart sounds were clear and no murmurs were heard. The lungs were normal.

The blood examination revealed: hemoglobin, 75 per cent.; red blood cells, 5,000,000; white blood cells, 12,000; differential blood count: polymorphonuclears, 65 per cent.; lymphocytes, 34 per cent., and large mononuclears, 1 per cent.; eosinophils, 0; basophils, 0; transitional forms, 0.

The results of a urinalysis, made at the time of the first examination, were: color, clear, pale amber; specific gravity, 1.010; albumin, a very faint trace; glucose and acetone, none; indican, slightly increased. Microscopic examination revealed no casts, no red blood cells, a few pus cells, and a few epithelial cells.

In studying the roentgenograms[8] taken before the operation, the fusiform enlargement, at the juncture of the middle and upper thirds of the right tibia, is seen in both the lateral (Fig. 3) and the anteroposterior views (Fig. 4). The cortical thickening of the tibial shaft was marked, and it encroached on the medullary canal. The medullary canal was almost entirely obliterated at the site of the most prominent part of the tibial enlargement. The bone substance was dense, and the periosteum was smooth and was not thickened or roughened. The fibula showed no pathologic change. The articular surfaces of the knee joint were smooth and showed no evidence of disease.

Operation.—August 29, under ether anesthesia, an incision 6 inches long was made over the crest of the right tibia at the junction of the middle and upper thirds. The periosteum was incised, and the tibial shaft exposed. The periosteum was normal in appearance. It was not adherent, and was easily deflected from the bone. The tibial cortex was smooth, and the crest was not roughened or serrated. In using the bone drill, the cortex was found to be of ivory-like hardness, and it was with difficulty that the medullary canal was exposed.

Confirming the findings of the roentgenographic examination, the medullary canal, which was opened for a distance of 5 inches, was seen to be greatly narrowed, particularly at the site of the most prominent portion of the fusiform tibial enlargement, admitting at one point only the thickness of a small bone-chisel. No pus was found in the medullary canal, and there was no macroscopic evidence of malignant or syphilitic bone disease. A frozen section of the medullary canal curettings was made at the time of the operation, and no evidence of sarcoma was found by microscopic examination. Cultures were also taken from the medullary canal. A section of the tibial cortex was taken for pathologic examination.

The periosteum was then closed, with the exception of a small area through which a gauze drain was inserted. The

8. The roentgenograms and lantern slides were kindly taken for me by Dr. S. B. Childs of Denver.

skin was left partially open to admit of the drain. This procedure was deemed advisable until the final pathologic and bacteriologic report was ascertained. An immobilizing splint was applied, extending from the foot to the groin.

The cultures taken from the medullary canal, and planted on agar and blood agar, showed no growth at the end of twenty-four and forty-eight hours.

At the end of the third day, the gauze drain was removed from the wound and the skin incision sutured. An immobilizing splint, extending from the foot to the groin, was continued five weeks, and no weight bearing was allowed until the end of the eighth week. Convalescence was uneventful.

Pathologic Report.—Dr. Philip Hillkowitz of Denver reported that the pathologic sections made from the scrapings of the bone and lining the greatly obliterated medullary canal revealed pieces of compact bone, together with some red blood corpuscles and a few white blood cells. No marrow cells could be demonstrated.

The sections of the decalcified bone taken from the tibial cortex at the time of the operation showed masses of compact bone, and also the lamellae and haversian canals. There are no foci of round cell infiltration, but a few areas were seen of hemorrhagic extravasation. The bone trabeculae were wider than those usually seen in this region. There was no evidence of any tumor formation. Malignancy may be safely excluded.

The photomicrographic slide (Fig. 5) taken from the bone section of the tibial cortex has been stained with hematoxylin eosin. The dark areas represent the compact bone, and the light areas the lamellae and haversian canals.

Outcome.—Since the boy's discharge from the hospital in September, 1919, I have had the opportunity of making frequent examinations, and careful records have been taken of the patient's progress. His weight has increased from 52 to 72 pounds. He has no pain in the affected leg, and no referred pain in the foot or ankle. His appetite is good and he sleeps soundly. There is no limp. The temperature has remained normal.

Jan. 29, 1921, the lad weighed 74 pounds, walked without a limp and had no pain. The lower extremities were of the same length, and there was no enlargement of the inguinal or popliteal glands. The infiltration and swelling of the soft parts over the affected tibia had entirely subsided, but the permanent fusiform osseous enlargement of the right tibia remained. The photographs taken at the time of this examination clearly outline the swelling which has been described. The skin over this enlargement was normal in appearance. There was no roughening of the tibial crest and no pain on pressure. The general condition was excellent. The heart, lungs and abdomen were normal. The urinary and blood findings were negative.

The roentgenographic examination taken at this time (Figs. 6 and 7) revealed the same fusiform enlargement, which had not increased in size, and demonstrated the same cortical thickening, with almost total obliteration of the medullary canal, as was noted in the plates made at the first examination.

Fig. 6.—Lateral view of right tibia seventeen months after operation, showing permanent, fusiform osseous enlargement, with obliteration of the medullary canal at the site of the tibial swelling. The left tibia has been taken for comparison.

CONCLUSIONS

1. Sclerosing nonsuppurative osteomyelitis as described by Garrè is a distinct clinical entity.

2. The differentiation between sarcoma of bone, bone syphilis, and solid osteitis fibrosa is frequently very difficult, and the symptoms in these bone diseases are frequently misleading.

3. In every case of bone disease there should be made a complete roentgenographic and pathologic examination before operative interference is undertaken.

4. It must be borne in mind that in some instances amputations for supposedly malignant disease of the extremities has been performed in cases which really presented the nonsuppurative sclerosing form of osteomyelitis.

5. In doubtful cases of bone disease, an exploratory incision should be made; and the employment of the frozen pathologic section taken at the time of operation, in order to determine the exact pathologic process, would prevent unnecessary amputations.

516 Majestic Building.

ABSTRACT OF DISCUSSION

DR. EDWIN W. RYERSON, Chicago: Since Garrè first published his observations many years ago, no case has presented itself to my observation which can truthfully be classified as Garrè's osteomyelitis. I have seen two cases in which there was a question of this diagnosis, but one was a case of atypical syphilis and the other a case of Brodie's abscess which had gone on to recovery, with the bone hardened and fusiform; but in a very careful study of the roentgenogram one could make out the small area in the middle of the shaft which revealed the origin of the trouble. It is creditable of Dr. Jones to have diagnosed and treated so successfully this unusual case. Many limbs have been sacrificed under a mistaken diagnosis of sarcoma. I hope that when one of these cases turns up in my clinic I shall be able to recognize it.

DR. FREDERICK J. GAENSLEN, Milwaukee: It might be a good plan for us to go over the cases we have diagnosed as bone syphilis to be sure that none of them are of the type described by Garrè. I am of the same opinion as Dr. Ryerson that the differentiation of this condition from sarcoma should not be difficult. The cases of sarcoma I have seen could not be confused readily. It might be interesting to give these patients a therapeutic test. I should like to ask Dr. jones what happens to the untreated cases. There are two points which it is well to keep in mind in the diagnosis of bone syphilis: The pain is worse at night and the disease comes on in the form of attacks. Paget's cases are not all of uniform type; in some, the bones are soft, and in others the bone is much eburnated. The opposite tibia, in the case Dr. Jones showed, seems to show some encroachment of the cortex on the medullary canal, as in Paget's disease.

SIR ROBERT JONES, Liverpool: I did not see the original article by Garrè, but since 1900 I have observed those fusiform swellings which at first sight one takes to be syphilitic, but the difference is really very obvious. The difference is very marked in the periosteum. The little depressions and corrugations in the bones and the firm attachment of

periosteum to the tibia are characteristic of syphilis, while the periosteum strips off very easily from the smooth bone in Garrè's affection. The treatment I have adopted has been of the same character, I think, that Dr. Jones has followed, that is, a good incision and even gutting of the bone. It is interesting to note that the condition once healed may recur. I had a case in which the swelling recurred eighteen months after the first operation and necessitated a second operation, but five years afterward the patient had still experienced no further trouble. It is extraordinary how severe the pain may be in relation to bone tension, and I have been accustomed in various types of bone thickening, especially in Paget's disease, to relieve discomfort by a bold linear osteotomy into the medulla.

Dr. S. Fosdick Jones, Denver: In these cases of sclerosing nonsuppurative osteomyelitis, great relief from the pain can be afforded by a free incision of the periosteum and the opening of the medullary canal. The cortical thickening is invariably present in this type of osteomyelitis, and as the same condition of enlargement and thickening of the cortex is seen in a fairly large percentage of cases of bone sarcoma in the early stages of the disease, the differentiation is often very difficult, particularly when viewed from a roentgenographic examination. In reply to Dr. Gaenslen's question, at the time of operation in this case, a cuneiform section was taken from the cortex of the tibia for pathologic examination and showed no evidence of bone sarcoma.

A NEW ROENTGEN-RAY SIGN OF ULCERATING GASTRIC CANCER*

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ROCHESTER, MINN.

The difficulty of distinguishing roentgenologically between benign and malignant gastric ulcers is a familiar one. Various minor criteria of distinction are to be found in the literature; but none of these has been advanced as being pathognomonic, and the majority are of small significance.

Fig. 1.—Specimen of ulcerating cancer. Note large, deep ulcer with overhanging margins.

Fig. 2.—The hand approximating the walls of the stomach around the lesion.

It must be admitted that an attempt at roentgenologic differential diagnosis of those benign and malignant ulcers which cannot be distinguished macroscopically seems futile. This applies to simple benign ulcers and peptic ulcers that have undergone malignant changes. However, there are well defined ulcerating gastric cancers which are probably malignant from the beginning. The pathologist is able to recognize them as carcinomas grossly by their elevated irregular, overhanging margins; their ragged floors covered with a mucilaginous exudate, and their tendency not to perforate although they may involve the serosa. Since this type presents a definite pathologic picture, it offers some possibility of roentgenologic demonstration (Fig. 1).

During the past two or three years I have repeatedly been able to demonstrate a particular type of deformity which at operation has invariably proved to be this type of malignant ulcer. Its roentgenologic appearance is so definite that I consider it to be pathognomonic.

Fluoroscopic examination is essential for the routine demonstration of this lesion because manipulation is nearly always requisite for its exhibition (Fig. 2). If the examination is limited to roentgenograms only, the barium solution may prevent apposition of the walls of the stomach in the neighborhood of the lesion and thus the deformity may be completely overshadowed (Fig. 3). I have frequently noted this obscuration in the plates, even when they were made with the patient in the prone position.

* From the Section on Roentgenology, Mayo Clinic.

The details of examination and the appearance of the ulcer vary slightly, depending on the site of the lesion.

When the ulcer is on the vertical portion of the lesser curvature or on the posterior wall near the lesser curvature, approximation of the walls of the stomach by palpation causes a dark, slightly crescentic shadow of the barium-filled crater to appear on the screen. In these situations the convexity of the crescent is toward the gastric wall and the concavity toward the gastric lumen (Fig. 4). The resemblance to a meniscus is so obvious that the word aptly applies to the sign. If the ulcer saddles the lesser curvature distal to the incisura angularis of a fishhook stomach a meniscus is similarly revealed by palpation, but in this instance the base of the ulcer follows the bending line of the curvature and the concavity of the meniscus is toward the gastric wall (Figs. 5, 6 and 7). When the ulcer is on the posterior wall, well away from the curvature, thinning the barium by stroking pressure with the hand reveals the crater as a somewhat circular, dark shadow surrounded by a lighter zone. No meniscus is apparent because in this situation the examiner does not view the cavity of the ulcer in profile (Fig. 8).

Fig. 3.—Roentgenogram showing an apparently normal stomach. By palpatory roentgenoscopy a large, deeply ulcerating cancer was demonstrated on the posterior wall near the lesser curvature.

Fig. 4.—Drawing depicting meniscus-like crater on posterior wall near the lesser curvature.

Whether the lesion is situated on the lesser curvature or on the posterior wall, if it is large, a mass may be felt by careful, deep palpation. If the ulcer is high in the stomach, palpation is less effective in eliciting all the signs described, although the shadow of the crater may be seen. If the ulcer is on the posterior wall and its crater can be demonstrated in the anteroposterior view, but no niche can be seen in the oblique view, we believe that we are dealing with this particular

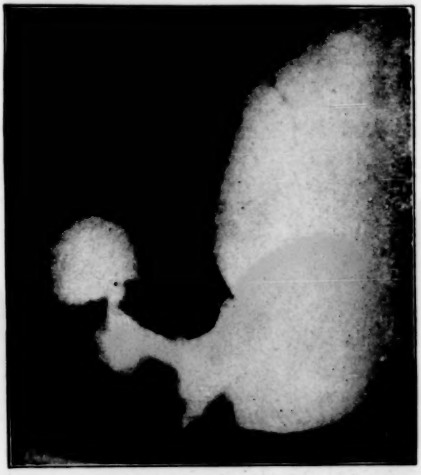

Fig. 5.—Roentgenogram of malignant saddle ulcer in the pyloric end of the stomach. Irregularity of the greater curvature opposite the ulcer is due to spasm. Note concavity of meniscus toward gastric wall.

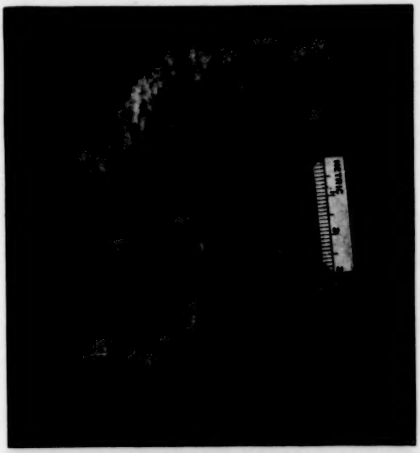

Fig. 6.—Specimen, same case as in Figure 5.

type of malignant ulcer. In fact, the absence of a classic projecting niche is one of its principal differential characteristics.

Another point in distinguishing this type of malignant ulcer from a simple ulcer is their difference in emptying by manipulation. In the former, the barium is dislodged from the crater with difficulty because of the overhanging margins. In the latter, the niche is easily emptied because it has no such margins.

Fig. 7.—Specimen. Saddle ulcer cut through at the line of lesser curvature. Half the crater is seen in profile. Note the resemblance of the crater to the crater seen in Figure 5.

A study of the specimens removed at operation in these cases affords great aid in the understanding of the underlying pathologic condition. In this type of carcinomatous ulcer the crater is on the mucosal or inner side of the gastric wall does not necessarily lie *within* the wall. In this respect it contrasts with the niche described by Reiche and Haudek which is sculptured in or beyond the wall of the stomach and the deformity is by way of a localized addition to the gastric shadow (Fig. 9). In the ulcer deformity I am describing there is no localized addition to the shadow of the stomach, but the reverse of this or an encroachment on the lumen. In other words, with the neoplastic process there is a hyperplastic invasion of the lumen, followed by ulceration. The disintegrating central portion gives rise to a crater surrounded by a ridge of carcinomatous tissue. It is the overhanging margin which enables us to pen up the barium in the crater by approximating the walls of the stomach in front of the ulcer. The findings which I have described are limited to those ulcers ranging from 3 to 8 cm. or more in diameter, with relatively deep craters and elevated or overhanging margins.

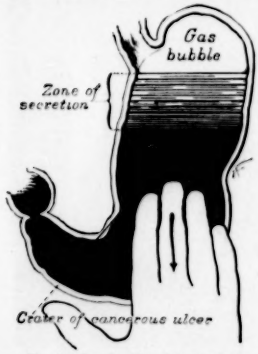

Fig. 8.—Drawing illustrating visualization of ulcer-crater on the posterior wall by stroking pressure of the hand.

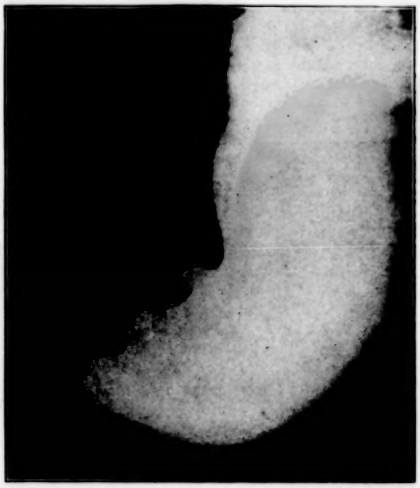

Fig. 9.—Roentgenogram showing Reiche-Haudek niche of gastric ulcer.

The Hemoclasic Crisis.—This is the name given by Widal, Abrami and Brissaud to the sudden and transient changes which occur in the blood preceding the anaphylactic shock, a transient hemolysis which develops without the subject's being aware of it. The blood pressure falls, the number of erythrocytes and of leukocytes declines also, the differential leukocyte count becomes inverted, and coagulation and the chemical-physical properties of the blood are modified. This hemoclasic crisis is brief, and it is followed by modifications in the blood in the inverse direction and to a more pronounced degree, so that at the close of the hemoclasic crisis the defensive properties of the blood on the whole have been materially enhanced. Recent research has demonstrated that the hemoclasic crisis is not restricted to anaphylactic phenomena. It may develop after parenteral injection of sugar, of protein and organ extracts, and from bacterial toxins and metal colloids, and even from inert substances, like talcum. Quénu and Delbet find that absorption of the products of disintegration of crushed tissues after a wound is liable to induce it. Also the penetration of merozoites into the blood in malaria, the transient hemoclasic phase being followed in the latter case with the chill and fever of ague. Paroxysmal hemoglobinuria is merely a sudden and severe hemoclasic crisis brought on, not by parenteral injection of any substance, but by chilling. The hemoclasic crisis is thus more than merely a manifestation of anaphylaxis. It embraces colloidoclasis, that is, all the reactions in the blood from modification of the colloids after injection of an alien substance, namely, agglutination, precipitation, hemolysis and cytolysis.

DIAPHRAGMATIC HERNIA

ITS CLINICAL ASPECTS FROM TRAUMA IN CHILDREN *

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FALL RIVER, MASS.

Hernia of the diaphragm is one of the concealed deformities which roentgenology has exposed for study and cure, essentially during the past decade. The condition is no longer considered rare. Numerous publications calling attention to all phases of the subject have made their impress. There has resulted an awakening to the vital significance of this defect and the wisdom of keeping hernia of the diaphragm in the category of diseases always to be reckoned with in making physical examinations. A study of the subject reveals the fact that this condition was brought to light preeminently during periods when postmortem examinations were eagerly sought. If necropsies were done more frequently now to determine the true causes of death, hernia of the diaphragm would be discovered many times in the nature of a surprise. Death from shock among individuals, particularly children, who have had the heavy wheel of an automobile pass over the upper abdomen is very likely to be from rupture of the diaphragm.

The first two cases of diaphragmatic hernia in literature were reported in the Opera Chirurgica by the father of French Surgery, Ambrose Paré,[1] in 1610. Both cases were from wounds. Another case, due to stab wound, was reported by Fabricius Hildamus [2] in 1646. In 1698, Riverius [3] reported a case of congenital hernia of the diaphragm. Kirschbaum [4] was the first person to make a serious study of this subject. In 1755, he compiled seventeen cases from his own observations and from the works of others. Somewhat later Morgagni,[5] the remarkable pupil of the distinguinshed Italian surgeon Valsalva, presented a monograph on hernia of the diaphragm describing the condition in a most accurate manner. About half a dozen other cases were reported by different authors until the famous work of Astley Cooper [6] on hernia in 1824. He gave a very complete and intelligent account of this disease, to which little has been added since.

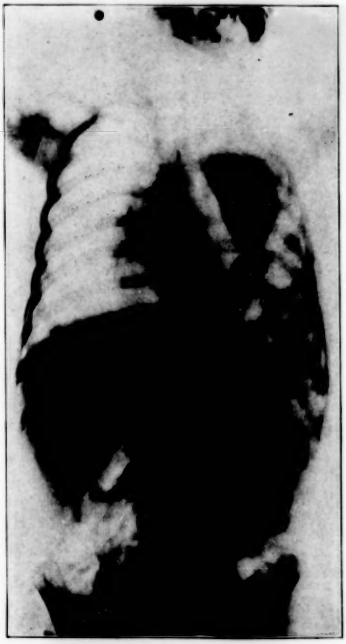

Fig. 1.—Five minutes after an opaque meal: stomach, pylorus and duodenum in the left thoracic cage.

Again, single cases were reported by numerous authors until 1853, when a monogram by Henry I. Bowditch marked the next epoch in our knowledge of this complaint. He compiled eighty-eight cases from the literature and added a valuable contribution to what had already been written on hernia of the diaphragm. As far as the literature of the past was concerned, he exhausted the subject. In the introduction of his treatise, the author reported a case from his own experience. In September, 1846, a young man of 19 was admitted to the Massachusetts General Hospital with a fractured spine. On physical examination Dr. Bowditch discovered signs of diaphragmatic hernia, which was confirmed later at necropsy. This was a notable and very significant case, when it is realized that before the days of the roentgen ray Lichtenstein reported 250 cases in which a correct diagnosis had been made in but five. Dr. Bowditch examined his patient carefully in order to observe the effects produced on the action of the heart by so severe an injury as fracture of the spine. The signs which he discovered convinced him that the intestines were in the left plural cavity. One infers from the report that many eminent diagnosticians examined this patient and concurred in the diagnosis. The zeal of the author to prove by necropsy the unique condition which he had demonstrated clinically is manifest in this sentence from his manuscript: "The postmortem examination was made very hurriedly, owing to circumstances beyond our control."

In his classification of the subject and description of the anatomic characteristics, Dr. Bowditch established facts which have withstood the test of time. Many of these are of fundamental value in the application of modern surgery to the treatment of the condition. With the advent of ether, the inhalation of which he proposed during attacks of constriction, he advocated a unique operation for cutting the hernia ring. This consisted of an extraperitoneal approach by an incision beginning at the ensiform cartilage and extending along the margin of the ribs. After cutting through the tendinous attachments of the muscles, he would proceed to the hernial ring by a deflection of the peritoneum. He referred to the rela-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Opera Chirurgica ab Ambrose Pareo, Frankfort, 1610, Ch. 30, p. 230.
2. Opera Gulielmi Hildani, Frankfort, 1646, cen. 2 obs. 33, p. 108.
3. Lazari Riveri Opera Medica Universa, London, 1698, Obs. Cent. Quart. ob. 67.
4. Kirschbaum: Dissertation, Chirurgie, Lausanne, **3**: 217, 1755.
5. Morgagni: Seats and Causes of Diseases **3**, Letter 54.
6. Treatise on Hernia by Astley Cooper, etc., London, 1824.

tive frequency of hernia on the left half of the diaphragm, and accounted for this by the pressure of the large lobe of the liver acting as a kind of bulwark on the right side; also to the added length of the right crus of the diaphragm and the two fibrous bands on the right side which do not exist on the left. He found that hernia of the right side almost invariably developed with a complete sac, while that on the left side usually had no sac. He indicated the areas in the diaphragm where, from anatomic peculiarities, hernia commonly occurred, and observed that the tendinous and muscular portions were equally liable to rupture from accident. Dr. Bowditch presented sufficient evidence to set aside the opinion that children born with hernia of the diaphragm, even of the most severe form, invariably die; and recorded a remarkable case by Becker,[7] that of a double hernia found at necropsy on a child who lived to be 5 years old. The heart and liver lay in the right side of the chest, while the spleen and stomach were found in the left pleura. A case of this type is *sui generis*, for it is the accepted opinion that infants with bilateral hernia of the diaphragm or complete absence of one half of this important septum do not survive after birth.

Fig. 2.—Roentgenogram revealing a dextrocardia together with the colon, small intestine and stomach above the diaphragm.

VARIETIES OF HERNIA

The category in which the hernia belongs is determined according to the causative factors producing the aperture in the diaphragm. In his studies, Graser[8] found that traumatic hernia of the diaphragm was the more frequent form. This variety occurs from stab wounds, gunshot wounds, shell fragments and injuries caused by external violence. Any part of the diaphragm may be opened, and the resulting hernia exists always without a sac. Small areas deficient in fibrous tissue or muscle fibers yield to external violence, and the rent may extend in any direction. The opening has no tendency to close by healing. Its margin becomes thickened, rounded and covered by fusion of the pleura and peritoneum.

The congenital form is relatively common. It usually appears at one of the unclosed pleuroperitoneal passages. In 433 cases compiled by Grosser in 1899, a congenital origin could be demonstrated in 232. Where the different segments of the diaphragm meet there are apt to be defects, such as at the foramen Morgagni in front and the quadrilateral space behind. These are common sites of congenital hernia. The congenital absence of fibrous or muscle tissue in the dome of the diaphragm has been found to produce a remarkable deformity without actual hernia existing. This condition is known as eventration, and constitutes a weakening of the diaphragm where the serous membranes alone form the partition between the cavities of the pleura and peritoneum. Under such circumstances the elevation of the diaphragm to a level of the clavicle has been observed.

While the organs contained in the pelvis have never been drawn through the hernial opening, all those within the abdomen proper have been found above the diaphragm at one time or another. The relative frequency in which the stomach is involved in the hernia has been mentioned by most writers on the subject. Particularly is this true in the congenital type and in that form where rupture within the central area has occurred from external violence. In small apertures, such as from stab wounds and gunshot injuries, the omentum and bowel are the first to pass through the opening in the diaphragm.

MECHANISM IN DIAPHRAGMATIC HERNIA

The mechanism of the transposition of the abdominal viscera necessarily varies according to the position, form and size of the aperture in the diaphragm and the mobility of the abdominal organs. Other things being equal, we would expect the greatest amount of displacement to occur in the very young and in thin adults. Lockwood,[9] in his luminous chapter on this subject, refers to the mechanism of diaphragmatic hernia as frequently so involved that many of the cases are difficult to understand even at necropsy. In its passage through the hernial ring, the movement of each viscus is such as to produce some degree of torsion. That such a process takes place with early symptoms of a serious character is unquestioned; but many of these patients with diaphragmatic hernia of considerable proportions, as the one to be reported in this communication, get along for months or years with very little embarrassment until something more passes through the hernial ring to impinge upon the free current of food and blood. This is true particularly of the traumatic hernia in which we find that the organs which pass upward into the thoracic cavity, though free from adhesions, do not revert to the abdomen unless the tear is extensive. Spontaneous reduction is a phenomenon associated with congenital

7. Becker: Acta Erudita, Lipsiae, April, 1706, p. 17.
8. Graser, cited by Bull and von Bugman, p. 626.
9. Lockwood: Diseases of the Stomach, p. 400.

hernia when the stomach alone or accompanied by the bowel slides back and forth with respiration and posture. The position which is taken by the transposed organs is shown in Figures 1, 2 and 3. The stomach after passing through the opening takes a position decidedly posterior. Next in order of escape is the colon and omentum. The colon occupies a central position between the stomach and small intestine. It appears to skirt the outer wall of the thorax and rests upon the outer leaf of the diaphragm. The small intestine, although moderately distended and considerably spread out, was found to be mainly in the anterior part of the chest cavity. The spiral upward movement taken by these abdominal organs necessarily makes strangulation a constantly impending hazard.

SYMPTOMS AND DIAGNOSIS

The symptoms of diaphragmatic hernia present the widest variation, from a mild degree of digestive disturbance to an alarming interference with heart action, respiration and gastro-intestinal function. In the traumatic form the symptoms are those associated with the entrance of a foreign body: hemorrhage, collapse of the lung and pneumothorax. Death may ensue in the first twenty-four hours, not from the tear in the diaphragm but from shock. If the patient survives, dyspnea and a disturbance of the gastro-intestinal function occur at irregular intervals and often without apparent cause. The complaint may be trifling and the patient continue at work or at play. On the other hand, the clinical picture may change suddenly with nausea, vomiting, obstipation, dyspnea and cyanosis presenting a group of symptoms indicating great danger. Unless the oppression and obstruction are relieved by the stomach tube, enema or operation, death is apt to ensue quickly from strangulation.

Fig. 3.—Stomach above the diaphragm and occupying a position in the extreme posterior section of the chest cavity.

While the congenital form in which only part of the stomach enters the hernial ring may exist throughout life and cause very little trouble, in some instances this minor deformity produces very annoying symptoms. When the aperture in the diaphragm, whether congenital or traumatic, is large and has admitted the stomach and intestines, an interesting group of symptoms results in which dyspnea and dyspepsia are the most constant. Under ordinary circumstances they exist in a degree scarcely noticed by the patient; but after exertion or overeating there is an oppressed feeling. A sense of suffocation may occur on lying down. Often the attacks of dyspnea are transitory and caused by gaseous distention of the stomach and bowel.

Cyanosis and cough may supervene from cardiac displacement and pressure by the distended hollow viscera above the diaphragm. Disturbances of digestion are frequent, though they may be of a mild character for a long period. Anorexia may persist. Frequently a feeling of fulness comes on after meals, increasing to distress and severe colicky pain when the patient has been unable to tolerate certain foods. For example, we found that eating a banana would make it necessary for our little patient to sit up. He would eructate, try to disgorge his stomach, become cyanosed and perspire freely. There may be a dragging sensation in the upper abdomen and odd feelings in the left pectoral region from peristalsis. Pain referred to the left upper abdomen is a common symptom on rising, and is caused by engorgement at the hernial ring due to gravitation of the herniated viscera.

In the acquired form the tear in the diaphragm is caused by external violence. Two cases which I have seen were in boys aged 5 years and 3½ years, respectively. In each instance the hernia of the diaphragm was produced by the passage of an automobile wheel over the upper abdomen. If the patient survives the immediate condition of shock, the symptoms may cause considerable apprehension for the first few days, and then subside. After a few weeks, months or years, they reappear in a series of minor attacks of intestinal obstruction and dyspnea. Beckman, McGuire, Balfour, Bevan and others have reported cases of this nonstrangulated type. A diagnosis is rarely made unless the physician has the condition of diaphragmatic hernia in mind during his examination. Diaphragmatic hernia has been known more in the light of a postmortem discovery, not because the symptoms and physical signs are vague in the least, but owing more to the fact that they are unfamiliar. Roentgenologists seldom make the diagnosis when the thoracic symptoms predominate. Transposition of the abdominal viscera to the pleural cavity must be discovered or at least suspected by the internist, who in turn directs the roentgenologist to administer bismuth solution for his examination. In the case which I report, several roentgen-ray examinations of the thorax were made

without gaining a suspicion of the diagnosis. On the other hand, whenever the thoracic symptoms are subordinate in degree to those of the gastro-intestinal tract, the routine roentgen-ray examination with the opaque meal will reveal the protrusion of the stomach and intestine into the thoracic cavity. This was shown in the discovery of three cases by MacMillan [10] among approximately 15,000 cases examined in the roentgen-ray laboratory at General Hospital No. 1. Again, in a case from battle wounds reported by Wiart [11] in which the symptoms were those of markedly obstructing gastric stenosis, the roentgen-ray examination revealed the stomach and colon in the left pleural cavity.

Occasionally the results of the roentgen-ray examination may be very confusing, as in a case reported by Greig [12] of a soldier who was wounded in October, 1914. The roentgen-ray examination was made in 1916, and resulted in a wide difference of opinion in interpretation. Pirie believed that fluid and air lay above the diaphragm, and the condition was thought to be hydropneumothorax. Thoracotomy revealed hernia of the diaphragm. In other instances the vault of the left half of the diaphragm may be very high, as in a case recorded by Gerber.[13] The opaque meal in the vertical position showed a stomach the greater part of which appeared to be intrathoracic. There was no hernia of the stomach through the diaphragm, however, but an abnormally high position of the diaphragmatic dome. This case might well be classified as one of eventration.

Thus far about forty-three cases from battle wounds have been added to the literature from the recent war. Some died of intestinal obstruction long after the date of injury. In the museum at Val de Grace is a specimen showing a diaphragmatic hernia of the transverse colon which had been unrecognized and led to death by strangulation of the hernia one year after the wound.

An occasional case was discovered after a complaining soldier had passed through numerous examinations. J. Grant Andrew [14] reports a case of diaphragmatic hernia from gunshot wounds. He states that the soldier passed from "pillar to post" for two years. He was several times treated for gastritis, and had always been marked up for "duty" and returned to the line. He was operated on by laparotomy, and recovered. The author mentions another case in which a year elapsed before the diagnosis was made.

Since cases of diaphragmatic hernia were overlooked so frequently during the war, when a gunshot wound in the region of the diaphragm might be expected to lead to a suspicion of this accident, it is no great surprise that in civil practice cases of diaphragmatic hernia from external violence should pass the scrutiny of many examiners without being discovered.

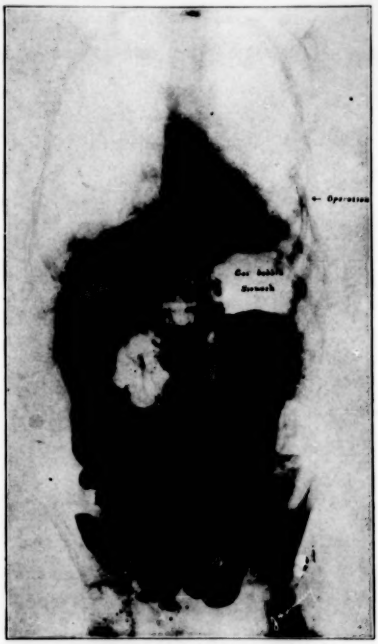

Fig. 4.—Two weeks after operation: The light areas above are the expanded lungs; the abdominal viscera as shown below the diaphragm have retained their normal relations after reduction.

PHYSICAL SIGNS

From the standpoint of objective signs, few diseases are known to present a more fantastic picture. While the presence of a small portion of the stomach in the thorax may reveal nothing unusual on examination, the hernia of large proportions presents anatomic variations which are significant and outstanding, though quite variable.

The acute cases, such as develop fever, rapid labored breathing, cyanosis, cough, dulness or a flat percussion note, with a good variety of râles, have been mistaken for pneumonia. Lockwood [9] states that when actual compression of the lung takes place, the note becomes progressively dull and the breathing approaches the bronchial type. At other times the physical signs may not be the same at any two examinations, since they necessarily vary according to the amount of food, water or air in the stomach and bowel. Not only do the signs on auscultation and percussion vary with the amount and character of gastro-intestinal contents, but they vary with the position of the patient. At one time the physical signs simulate pneumothorax, at another hydrothorax, and again they appear to indicate hydropneumothorax. However, in spite of many vagaries presented, the herniated viscera show important signs somewhat easy of interpretation if the examiner's mind is receptive. The affected side of the chest is prominent, restricted and motionless. The outward flaring of the margin of the subcostal angle due to loss of pull by the diaphragm against the scalene and intercostal muscles is readily observed. Litten's sign, the diaphragm shadow, is absent. The abdomen is scaphoid to a degree depending on the extent of hollow viscera displaced. Dextrocardia is

10. MacMillan, A. S.: Am. J. Roentgenol. 7: 143 (March) 1920.
11. Wiart: Bull. Soc. de chir. de Paris, July, 1917.
12. Greig, D. M.: Edinburgh. M. J. 22: 357 (June) 1919.
13. Gerber: Am. J. Roentgenol., August, 1919, p. 383.
14. Andrew, J. G.: Brit. M. J. 2: 412 (Sept. 27) 1919.

always present in some degree. The displacement may be slight; but if the stomach is in the left pleural cavity, the heart may be pushed farther to the right side by administering a Seidlitz powder. On percussion the note is necessarily variable: flat over areas of contained fluid, dull in others and tympanitic over distended stomach or bowel. The usual position of the stomach in the posterior part of the thorax gives a tympanitic note if this viscus is distended by gas. When the percussion note is tympanitic over a wide area, it can be made flat by giving the patient considerable water by mouth and by rectum.

On auscultation there is a mixture of sounds. Subcrepitant râles have been noted. To one accustomed to listening over the abdomen, they appear similar to those heard in chronic intestinal obstruction, as gurgling, blowing, metallic sounds synchronous with peristalsis. These sounds may be heard high in the chest cavity, making their transmission from below the diaphragm improbable. Finally, the all important agent of examination, the roentgen ray, is brought into play. A series of roentgenograms after the opaque meal removes nearly, if not all, doubt about the relative position of the stomach and intestines. A barium enema in addition to the bismuth meal should always be given in the examination of children. It is the most satisfactory method of defining the colon clearly. The use of the fluoroscope greatly enhances the study of the transposed organs.

The condition of eventration may be mistaken for hernia, and it may be found extremely difficult or impossible to differentiate the outline of the overstretched diaphragm because of its thin walls throughout the dome. However, with the aid of the Bucky diaphragm the technic may suffice for differentiation. Giffin [15] makes discrimination as follows: "If two curved shadows be present, a radiographic or fluoroscopic examination after distention of the stomach should indicate which is stomach and which diaphragm; if the lower line be stomach it will move up against the diaphragm line; if the upper line be stomach distention upward into the chest will be almost unlimited."

If the line of the diaphragm can be defined in the roentgenogram, it will be found irregular and severed in hernia while its continuity will be unbroken in all other conditions. Signs of fluid somewhere in the pleural cavity may prompt the examiner to aspirate. So positive were these signs in the case we report that preparations were made to insert a needle. Doubt ruled as the signs had changed when the moment came to act, so it was not done. In another case a needle was inserted and the operator got milk.

REPORT OF CASES

CASE 1.—L. S., a boy, aged 5 years, was run over by an automobile, May 11, 1920. A front wheel of the machine passed over his abdomen. He was taken to a hospital, in a condition of shock; the exact nature of the injury could not be determined. At the expiration of two weeks the patient apparently had recovered, and was discharged. Soon he was about the house and mingled with other children at play. It was noticed on frequent occasions that his breathing was embarrassed and his food caused distress, especially if he ate bananas or overloaded his stomach with any food. At night he required several pillows; otherwise he was restless and his breathing labored. He was said to have been more subject to "colds." These minor complaints were variable and not of sufficient severity to cause more than passing concern.

In December, 1920, he had a severe attack of pain referred to the left upper abdomen. He was nauseated, and tried unsuccessfully to vomit. The appearance of cyanosis, dyspnea and sweating accompanied the attack, which did not last more than ten minutes. At intervals of two to three weeks these symptoms of strangulation recurred. The duration of the attacks increased and very visibly affected the boy's endurance. He was examined on many occasions, but the cause of his symptoms was not definitely detected until he was referred to Dr. Henry I. Bowditch 2d, who has given me a copy of his notes to include in the record. They are as follows:

"January 24, L. S., 5 years, well developed and nourished, pale, has apparently lost flesh; expression is not happy; cannot laugh much. Outside of chest is negative. Left side, especially the axilla and back, is prominent. Spaces are normal. Left side moves less. Expansion not noticed. Percussion: Dulness over the left chest below the third rib, down to axilla. Posteriorly in the intrascapular and subscapular spaces the note is tympanitic. Tactile fremitus was absent except at top of left chest. Right chest showed resonance except for the right border of the heart, which was 3 cm. outside the right sternal border.

"Auscultation: Breath sounds over the left chest were absent except over the tympanitic space, where they were distant. There were no splash sounds and no coin sounds. There was no dulness in Traube's semilunar space. No triangular dulness in right subscapular region. The areas of dulness and tympany vary by sitting and lying. Dulness seeks dependent parts. Diagnosis: Diaphragmatic hernia." This diagnosis was confirmed on roentgenologic examination by Dr. Ariel George.

A transthoracic operation was performed, Feb. 23, 1921. The little patient made an uninterrupted recovery and left the hospital on the fourteenth day, when roentgen-ray examination revealed the condition shown in Figure 4.

CASE 2.—The second case which I have the privilege of mentioning was seen at the Rhode Island Hospital on the service of Dr. J. C. O'Connell. A boy, aged 3½ years, was run over by an automobile, one wheel of which passed over the upper abdomen. He was admitted to the hospital in a state of shock, and in many details, from what I can learn of the first patient, these two cases were comparable. At the end of three weeks, Dr. O'Connell closed the lacerations in the diaphragm by the abdominal approach. This patient recovered with the apertures in the diaphragm entirely healed.

The latter case adds evidence to the growing liability of the occurrence of this type of severe accident in children, and the great importance of its early recognition.

15. Giffin, H. Z.: Ann. Surg., 55: 388 (March) 1912.

ABSTRACT OF DISCUSSION

DR. D. F. JONES, Boston: Dr. Truesdale reports two cases of diaphragmatic hernia due to injury. I have seen four cases of acquired diaphragmatic hernia within a year. Two were diagnosed by the roentgen ray, and two were found during the routine examination of the abdomen, in the course of laparotomies for other conditions. But one patient of the four was operated on for repair of the hernia; one not operated on was a man well along in years and a very poor surgical risk; two were without symptoms, and without any evidence that the stomach ever entered the hernial sac; that is, there was no thickening of the peritoneum at the cardiac end of the stomach. In regard to the operation, I would give a word of caution: Those who were in France became convinced of the slight danger of opening the thorax, and a number of those men with whom I have talked have urged the thoracic route as being by far the better route for the repair of these hernias. There can be no doubt that it is an excellent route, and in some cases the preferable route; but I would suggest that in the acquired hernias, at least, the abdominal route be tried first; in some cases it may be necessary to go into the abdomen and chest. The case in which I did not operate was so easily done by the abdominal

route that the thoracic route was not considered at all. The patient was thoroughly anesthetized and the lower portion of the chest thrown forward by a sand bag under the back. The edges of the ring were then found with the fingers and a silk suture placed, getting a good bite on both edges of the opening. This suture was tied and pulled on when the next suture posteriorly was placed and the procedure repeated until the opening was closed. The patient has been entirely relieved of symptoms for one year now, and the roentgen ray shows that the stomach no longer enters the hernial sac.

DR. F. W. WHITE, Boston: Congenital cases of diaphragmatic hernia of the stomach usually differ considerably from the traumatic type. Three congenital cases which I saw in the last year had much less stomach and bowel in the chest than Dr. Truesdale's traumatic cases. The diagnosis was impossible by symptoms or physical signs. The symptoms varied much. They were obstructive or vague and absent. The physical signs in the chest amounted to virtually nothing. There was no extensive lung compression, or dulness or tympany on succussion, no limitation to chest movements, no flaring of costal edge or sinking in of abdomen, no dislocation of the heart. The diagnosis was made purely by roentgen-ray examination. Even after the diagnosis was made, repeated physical examinations of the chest by auscultation and percussion were practically negative. Even with roentgen-ray examination some knowledge of previous cases is needed. Two of these three patients had been repeatedly examined by the roentgen ray before coming to me, without a diagnosis. Something wrong with the lower part of the esophagus had been suspected. The diagnosis of diaphragmatic hernia from high sided left diaphragm (so-called eventration) is important, as the first is usually surgical and the second is not. It is usually easy. In high left diaphragm, we have a stomach normal in appearance except for its high position. In hernia, the stomach itself is deformed doubled up or hour glass shaped, partly above, partly below the diaphragm, and there is often great variation in shape and position of the stomach at different times, now above, now below the diaphragm, or half way down, etc. The lung markings may often be seen through a herniated, not through an eventrated, stomach. Many cases of diaphragmatic hernia will be found now that the roentgen ray is freely used. We must watch for hernia where there is apparently something peculiar about the lower left chest or pouching in the lower esophagus region. We must remember that the clinical signs and symptoms are not distinctive in more than 2 or 3 per cent. of the congenital cases—in short, that practically all will be missed unless the roentgen ray is used.

DR. L. T. LE WALD, New York: Eight cases of diaphragmatic hernia have come to my attention. It certainly is a much more common condition than we ever thought from necropsy statistics. Seven of our cases were congenital and only one was traumatic. Hernia of the diaphragm is usually a congenital condition. It is not incompatible with longevity. Operation should be resorted to only to relieve distressing symptoms. In the repair of the hernial opening it is essential that the symptoms be relieved by the operative procedure. Eventration of the diaphragm can always be distinguished from hernia of the diaphragm roentgenologically. Eventration of the diaphragm is a much more common condition than has been recognized in the past. It has been observed in childhood and may be of congenital origin. It should never be confused with spontaneous pneumoperitoneum or subphrenic abscess with the production of gas beneath the diaphragm.

DR. P. E. TRUESDALE, Fall River, Mass.: When the child mentioned in my paper was to be operated on, I made a reasonably thorough search of the literature and found the reports of only two children who had been operated on for diaphragmatic hernia. Mr. Howson Ray of England had operated on one. He completed his operation by a gastrostomy. William A. Downes operated on the other. It seemed to me that the most satisfactory approach for this condition would be the transthoracic, and it undoubtedly was, although it was not all smooth sailing by any means. At one time I believed that I would have to open the abdomen. It was extremely difficult to get the intestines back into the abdominal cavity because the abdomen was scaphoid. Only by getting the finger in and raising the diaphragm several inches was it possible to reduce the herniated structures. In the case in which Dr. O'Connell operated, we discussed the method of approach. He wisely chose the abdominal route and demonstrated that a surgeon should use the method that is best suited to his particular case. I am not sure that in the next case I would not select the abdominal approach, for the reason that in Dr. O'Connell's case a condition existed that would have been overlooked by the thoracic route. There was an opening in the right half of the diaphragm. I agree with Dr. Jones that there is a place for the abdominal operation, and perhaps it is often the better of the two.

CANCER OF THE RECTUM*

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NEW YORK

Excepting the stomach, the rectum is the most frequent site of cancer in the alimentary canal. Unlike the stomach, the rectum is the most accessible part of the intestine. Here, by means of the proctoscope and the examining finger, a tumor can be diagnosed at almost any stage of existence. Nevertheless, about 75 per cent. of patients suffering from cancer are not diagnosed until the tumor has made considerable headway. A large number of these patients have been treated for indigestion, hemorrhoids and various complaints, but not for the dreadful disease from which they are suffering.

In many cases, the examination has not been sufficiently thorough. Some do not use the proctoscope; others, while using one, do not understand what they see sufficiently well to interpret it. Fortunately, tumors of the rectum, except when located near the anus, remain stationary for some time. Otherwise, few cases would be operable when at last seen by the surgeon. It is important, therefore, if we wish to make progress, to make a routine examination of all patients; most especially those suffering from constipation, bleeding, explosive movements, the passage of mucus, or any digestive disturbance whatever. Should we be conscientious in this, most cases will be discovered in their incipience, and the surgical results gratifying.

SYMPTOMS

The earliest symptom of cancer of the rectum is the sudden onset of constipation, and this is particularly noticeable in those who have had regular movements previously. Stockard believes that this is due to an irritation of the sympathetic, with a lowering of tone. Whatever may be the explanation, it is certainly significant, as it is in no way associated with the size of the tumor or the extent of the obstruction. We have seen this symptom in patients with a tumor no larger than a marble, and we are all familiar with the difficulty one has in emptying the colon either by cathartics or enema previous to operation. I have never seen a case in which the colon, at the time of operation, was free from feces; and at times this has been a serious embarrassment, both during and after the operation. I know of one instance, in my own practice, in which the colon was so packed with feces that it was with difficulty that the lower bowel was evacuated before the operation could be started. The

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patient later died of obstruction, and I was fortunate in securing a necropsy. The woman's colon was packed with feces beyond the ileocecal sphincter, notwithstanding the fact that she had the usual preparation previous to operation.

Every surgeon knows the part played by peripheral irritation in simulating gastric disease. We are aware that chronic appendicitis, a gallbladder, a long sigmoid, and a nonfused colon are frequently responsible for so-called indigestion; but few seem to take into consideration the fact that a carcinoma may cause these symptoms. We not infrequently see patients who have been treated for some time (and I have in mind two or three now), for gastric disturbance only, when they had a well developed carcinoma of the rectum.

The passage of blood and mucus with an imperative desire to move the bowels followed by an explosive and unsatisfying movement occurs in all cases, except when the tumor is situated close to the anus; and then the only symptom may be the passage of a little blood.

Almost invariably, patients complain of an indefinable feeling in the pelvis, without being able definitely to locate the site of the trouble. But in every instance the frequent and imperative desire to move the bowels dominates all other symptoms. As time goes on, the desire becomes more frequent and more imperative. The patient has to go to the toilet immediately on getting out of bed in the morning; and, as the disease advances, nocturnal movements become part of the picture. Other symptoms frequently emphasized in textbooks, namely, loss of weight, cachexia and pain, are all terminal phases of malignancy, and are of interest only to the pathologist.

I have been impressed by the weight that some physicians attach to age. They seem to imagine that cancer is rare in the young. As a matter of fact, cancer occurs at all ages; and, while less frequent in the young than in those between 45 and 60, still, for all, a goodly percentage will be encountered between 20 and 25. In my own practice, a number of cases have been seen between 20 and 25. The chart compiled by Dr. Palmer gives some idea of the cancer indidence in our series.

The cancerous tumor is so characteristic in its feel and in its appearance that any one who has once seen or felt one should be able to make a diagnosis instantly. It is true that the most experienced may be misled, but this is rare. I have had under my care, within the last year, three cases, all of inflammatory origin, existing from two to ten years, in which, on removal of the rectum, much to my surprise the pathologist made a diagnosis of adenocarcinoma. This brings up a very interesting problem and one that will require careful study in the future as to what percentage of inflammatory tumors is malignant. These inflammatory conditions differ from the ordinary cases we are in the habit of seeing, in that the inflammation seems to have originated in the follicles, giving the examining finger the impression of a nodular, bosselated surface with enormous thickening of the rectal wall. Other conditions that may be mistaken for cancer are hyperplastic tuberculosis, diverticulitis, ulcerative tuberculosis, gummas and nonspecific infections.

DIAGNOSIS

Biopsy, so frequently performed to confirm a diagnosis, I hold to be seldom justifiable; in fact, I believe it is distinctly harmful. If, as has been shown, the mere handling of a tumor causes dissemination of the cells, why isn't the risk of a biopsy greater? In my opinion, in 98 per cent. of these cases, a simple digital or proctoscopic examination is sufficient. After the diagnosis has been made, there are many factors that must be given due consideration before a definite decision can be reached as to the best means of relief. Many cases, while apparently operable, are not in reality so because of the patient's general condition.

TREATMENT

The diagnosis having been made, the best method of treatment must be considered. This will be decided largely by the type of tumor, its duration and its location. It is our custom at St. Bartholomew's Hospital to cooperate closely with the radiologist, Dr. Levin. This is especially true when for any reason the question of the advisability of surgery is in doubt.

In all cases we consider it desirable, whenever possible, to have the radium applied during or after operation. In inoperable cases, we first establish a stoma, and afterward apply radium. While the type of operation is largely determined by the location of the tumor, there are certain underlying principles by which we must be guided and which, to a large extent, dictate the procedure. We should always be mindful that, no matter how recent the tumor, its spread may have been so rapid as to be inoperable when seen, though it may seem at first to be operable and movable. By this I mean that, even in early tumors, cells escape into the venous circulation and become implanted in the liver. Again, when the tumor is situated close to the anus, the ischiorectal fossa early becomes infected, and on account of the generous lymphatic supply, the radical operation is imperative. But there are certain structures that should always be under suspicion, because it is through these structures that dissemination usually occurs; the lateral ligaments, the ischiorectal fossa, the levator muscle. The rectum is a self contained organ, and, if removed with its fascia intact, we have less danger of surgical coiling and recurrence. Hartman's critical point in the blood supply must be remembered, as gangrene may result, if overlooked.

I have arrived at the conclusion that only after an exploratory operation can one be positive what procedure one should choose.

Within the last year, two perineal operations were successfully performed, and a few months later I found it necessary to resort to laparotomy. In both instances, the undersurface of the liver was studded with nodules. Both of these patients are yet living; but, if I had performed an exploratory laparotomy in the first instance, I would have left the patients with an artificial anus instead of doing the radical operation.

While the results are apparently good from the perineal method, we must always bear in mind the possible liver involvement. An exploratory incision is not dangerous; it gives a complete picture and allows the surgeon to conclude intelligently the procedure to be followed.

It is now agreed by all that infection and loss of blood lower the patient's immunity to cancer. If this is so, my contention is sustained that an artificial anus should be the resort, the moment we are convinced that a tumor is inoperable.

Of course, this is not the only indication for colostomy. Often it is better to perform a colostomy even when the tumor is operable, and wait for several weeks before going on to the radical operation. I have in mind many instances in my own experience in which the patient's condition was so greatly improved by colostomy that a radical operation was subsequently feasible. An ileostomy is sometimes preferable to colostomy; but I cannot subscribe to the dictum that an ileostomy is always preferable to a colostomy when a radical operation is subsequently anticipated. I have found it best on some occasions to perform a colostomy first, remove the tumor a few weeks later, and then, some six months afterward, reconstruct the rectum.

The patient's dread of a colostomy is unfortunate. I have so frequently performed this operation for other conditions, and the functional results have been so gratifying, that I deplore the fear for this operation engendered in the minds of the patients by the profession. The operation is easily performed, under local anesthesia, in fifteen or twenty minutes, and the abdomen explored at very little inconvenience if the method we follow is adopted:

After the abdomen is opened and explored, the sigmoid is brought out and a glass rod passed through the mesentery; the peritoneum is sutured to the bowel in four places, with interrupted catgut sutures. The fascia is closed in the usual manner, and two silkworm-gut sutures are passed through the skin and fascia close to the bowel and brought out on the other side. The rest of the skin is closed with silk. Usually, on the second or third day, the bowel is perforated and a catheter passed into the oral end to allow the escape of gas, the catheter being fixed in place by means of a circular silk suture. On the fourth or fifth day, the colostomy is opened. After this, the oral bowel is irrigated once daily, and the aboral end as often as is necessary. The daily irrigation is really the secret of a competent colostomy. Our patients have never found it necessary to wear any mechanical device, and it has been my experience that the dread of a colostomy is based on the irritation and increased peristalsis brought about by the wearing of such contraptions. A simple gauze pad is all that is necessary.

It not infrequently happens that a patient is brought for diagnosis and, after the diagnosis is made, the medical man in attendance declares the case inoperable. Now, it seems to me that if the physician is not competent to make the diagnosis, he is not in a position to make so momentous a decision.

One cannot lay down a hard and fast rule as to the type of operation best suited to all cases. We must be guided by experience, judgment, and the conditions encountered at the time of operation. Generally speaking, however, one might state that the Kraske method, so popular in the past, is seldom resorted to nowadays. The purpose for which it was originally intended, namely, resection of the rectum, does not give a good result. Resection always results in stricture. It is an axiom in pathology that connective tissue is formed in inverse ratio to the blood supply; and this is the true explanation why stricture follows resection. Notwithstanding Barber's experiments, one constantly hears that the absence of peritoneum is the cause of stricture. Barber has shown that in dogs the absence of peritoneum plays no part in the formation of stricture, provided the blood supply is good.

I myself have abandoned all these mutilating operations. There are three procedures which can be modified to suit the case, that are always applicable, namely, the perineal, abdominal-perineal, and abdominal. All these operations have been thoroughly described, so it is unnecessary to go into details. It is held by some surgeons that a colostomy is preferable to an implantation of the bowel at the anus. My own experience does not gibe with this. I have found that if the bowel can be restored to its original position, the patient is better satisfied, and the result excellent, regardless of whether he has a sphincter or not, provided this does not in any way endanger the patient's future, by overlooking any cancerous cells. The patient is better satisfied; the result is good. In fact, some of the most satisfactory results have been those in which I have removed the sphincter. This may seem paradoxical; but results justify the assertion. Nature makes provision, it would seem, for the absence of the sphincter, and the segment above will take on the function of the absent part. This has been demonstrated in our ileostomies. The fecal matter, which is fluid for the first two or three weeks, gradually becomes semisolid, and we have seen patients who have had formed movements from such a stoma. The nerve supply to the bowel is developed segmentally, and this may offer the explanation of the adaptation I have spoken of.

I have, at various times, implanted the ileum in the rectum, and the patients have had formed movements. I have come to the conclusion that, should occasion arise when a large part of the colon had to be removed, I should not hesitate to implant the ileum at the anus, feeling confident of getting a good functional result.

I might mention, in passing, that I always remove the coccyx, as it affords better drainage and permits control of the dead space back of the rectum, during healing. The most painful complication results from a fistula following imperfect healing of the posterior pelvirectal space. Whenever the tumor is situated close to the bladder, I have always had cystoscopy performed previous to operation.

205 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. C. F. MARTIN, Philadelphia: Carcinoma is found in the rectum at only two points with any frequency. One is at the rectosigmoidal junction, and the other at the anorectal junction. The rectosigmoidal type is the most frequent because this tissue has no spinal nerve supply, and therefore the patient has no pain. I have seen only three cases of early carcinoma, and these were of the anorectal type, the pain occurring early. There seem to be two possible explanations why carcinoma begins at these two points: One is that at both points there is a transitional form of tissue; and the other is that at both points there is a considerable narrowing of the lumen of the bowel; and, therefore, traumatism, with infection, may be a factor. The question of operability depends very much on the ability of the surgeon to remove the growth. I believe in the widest removal of tissue. Without operation death is inevitable; therefore, operation is indicated wherever possible when the patient will submit. The choice of the one stage or the two stage operation often depends on the invidual preference of the operator. I believe that the one stage operation is the best, because it produces less shock to the patient.

DR. A. J. OCHSNER, Chicago: I have been very much interested for many years in cancer of the rectum. Of late we have changed our treatment considerably. First, we never remove a portion of tissue for microscopic examination

because it makes the prognosis much worse for the patient. We might be justified in removing a portion with electric cautery, but the removal of even a small portion of cancer with the knife changes the prognosis entirely. Normally, metastases from cancer of the rectum do not take place until very late. On the other hand, the moment you cut into the cancer you lay the lymph spaces widely open, and the cancer cells doubtless pass into the lymph circulation and form metastases. In my experience, patients who have had portions of cancer removed for microscopic examination have usually died of metastases. Cancers are located at the two points mentioned because it is possible for the microbes contained in the feces to remain in contact with the surface for a considerable period at a time, owing to the stasis resulting from the natural obstruction at these points. You find cancer wherever there is stasis due to obstruction. Dr. Lynch's idea of making a laparotomy is very valuable from two points of view. We are in the habit of making a laparotomy for the purpose of making a colostomy and to determine whether there are many lymph nodes at a distance which are already infected with cancer. In case they are extensively involved, we do not go any farther than to make a colostomy and then treat the cancer itself with radium. We have had several such cases. After a number of months four of the patients, sent home to die, have returned apparently cured. Having killed the cancer infection in the tumor itself with radium, the natural ability of the body cells to kill off those bacteria that have escaped beyond the reach of the radium is probably sufficient to have saved these patients.

DR. P. E. TRUESDALE, Fall River, Mass.: Only an operation of the most radical type should be done for cancer of the rectum. No one knows how far the operation can be extended until an examination of the retroperitoneal glands and liver is made. I would suggest the use of another term instead of exploratory laparotomy, which is always an expression of doubt and one which always impresses the patient with some apprehension and fear. I think we should say that we are going to make a "surgical examination." If nothing is done, the result of the examination has demonstrated that the disease is inoperable.

DR. S. G. GANT, New York: I want to commend Dr. Lynch on the interesting work he has been doing. Two or three symptoms he seems to have overlooked. Pain, hemorrhage or rise of temperature do not occur until late in the disease. Hemorrhage follows ulcerations, and there is no odor if you keep the cancer clean. There is one valuable method of diagnosing cancer of the rectum beyond reach of the finger. I have the patient stand up; put the finger in the rectum and have him strain, which brings the growth in reach of the finger. Regarding the combined operation, there is no doubt, owing to our improved technic, that this procedure is adaptable to more cases than we formerly believed. I have performed many combined operations and obtained good results, but patients die of recurrence following it as after other excisions. There is very little need for the Kraske operation for growths located in the lower rectum. I never employ the perineal or sacral or combined operation in women. By the vaginal route you can take out almost the entire sigmoid flexure and sew the stump to the anus. In many cases you do not have to open the peritoneal cavity, as the peritoneum can be stripped up. The mortality is much higher in the combined operation. In case of cancer in the sigmoid flexure, a colostomy is all right in connection with extirpation. I find that my patients will not stand for colostomy. By dividing the peritoneum and mobilizing the vessels you can bring the sigmoid clear down to the anus. If the growth is within an inch or an inch and a half of the anus, I never attempt to save the sphincter muscle at the expense of the patient's life, but if the growth is an inch or two higher up, I preserve the sphincter. I never attempt to anastomose the intestine below the peritoneal attachment as the wound breaks down. Only 5 per cent. of cancers are anal, the majority being located in the middle rectum.

DR. F. C. YEOMANS, New York: It does not seem to me that taking a small piece of tissue from an ulcerating growth will spread the disease. The idea in mind is to operate very soon after biopsy. About four years ago I devised a biopsy forceps for intestinal tumors, applying them through a sigmoidoscope. My plan is to bite out a section of tissue ¼ by ½ inch from the tumor and then apply to the cut surface pure phenol (carbolic acid). The results have been most satisfactory. Further, in many cases after operation for carcinoma, granulation tissue persists and there is a question of recurrence. In four cases this method has demonstrated that it was only granulation tissue and not a recurrence of the cancer. As to the choice of operation, I believe this depends on the age and general condition of the patient and the type, location and extent of the growth. Take an old patient, flat, flabby and anemic: he will hardly stand a combined operation. If the growth is low down and can be removed by the perineal operation, the chances of recovery are very much increased.

DR. J. W. LYNCH, New York: Dr. Martin spoke of the importance of pain in diagnosis. Pain occurs only in inoperable cases. Dr. Yeomans tells us the advantages of the two stage operation. After the abdominal operation is finished, it is merely a matter of five or six minutes to remove the rectum. I have never seen a patient who stood the secondary operation well. I therefore decidedly prefer the one stage operation. Glandular enlargement is present in all cancers by the time the cancer is discovered, owing to ulceration. Glandular enlargement is not a contraindication to operation. Dr. Truesdale's point is good. Some cells might be carried by the venous circulation, with early liver involvement. Operation must depend, to a great extent, on the patient's condition. One will not do a radical operation, if convinced that the patient is in no condition to stand it. There are certain structures through which the cancer cells travel—the lateral ligaments, the ischiorectal fossae, and the levator ani muscle. If you expect to get a cure, you must remove all of these structures; and this means a very radical operation.

NIGHT BLINDNESS

AND THE MALINGERING OF NIGHT BLINDNESS *

HENRY SMITH, M.D.
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I had a paper ready for the press in July, 1914, but held it back until the present hour as I was then of the opinion that neither the Germans nor any one else was able to detect the malingering of night blindness with any degree of scientific accuracy, such as would be required for a court martial.

A few years ago I saw in one of the American medical journals that, of the young men who became of age for military training, over 8 per cent. in France, and over 10 per cent. in Germany were night blind, whereas the normal would be one in 12,000. The explanation made by the writer was that the large percentage was due to famine conditions, a thing which certainly did not exist in either country at the time. The cause was plainly malingering. I was of the opinion that if I published this paper then, Germany would be the first country to take advantage of my observation to our own disadvantage. From the figures quoted above, it is evident that the ophthalmologists of the Central Empires were not able to diagnose this form of malingering with the accuracy required by court martials. The malingering of night blindness by British troops, and I presume, by American troops, hardly existed. In the Indian army it prevailed extensively. As ophthalmologic consultant in Mesopotamia, I soon became aware of this fact, and in a very short time cleared it out of the Indian army. I propose in this paper to deal with idiopathic night blindness. The night blindness associated with a few other conditions is so

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late a symptom that the patient is invalided for the principal disease and thus does not come under consideration for malingering. Famine night blindness, I believe, did not exist in any of the armies in the great war. Famine night blindness would be detected of itself in exactly the same way as idiopathic night blindness.

IDIOPATHIC NIGHT BLINDNESS

Idiopathic night blindness is a symptom of bilateral, slowly and uniformly progressive degeneration of the retina. It advances equally in the two eyes. In my observation it appears to be very often, if not always, hereditary, and its earliest symptoms seem to date from an early age. From the first observed symptoms, it seldom takes less than twenty years to mature, more generally from thirty to forty years. When it is mature, the patient is stone blind. The pathologic condition is generally called retinitis pigmentosa, but it is admitted that we have the same symptom and the same condition of retina without pigment. The latter condition without pigment is common in India. The pigmented variety in India is, I think, rarely seen. In the early stage there is very little wasting of the retina. The atrophy slowly and steadily progresses, until at last only the choroid appears, except a faint yellow spot and the optic disk. Every structure of the retina atrophies in harmony with every other. In my observation this disease is incurable; the vaunted remedies are useless.

The quickness of the reaction of the pupil to light becomes progressively sluggish, *pari passu* with the progress of the disease. I have become so familiar with this aspect of the disease that in cataract cases I can diagnose it by this symptom alone. Whether or not I shall operate in such cases of cataract depends on the degree of sluggishness. Any eyes, otherwise healthy, with a completely blind central scotoma, which renders the possessor almost blind, has normal reaction of the pupil to light. This fact, taken in conjunction with the sluggishness of reaction to light, in this form of progressive retinal atrophy, which has only central vision, indicates that the reaction of the pupil to light is through the periphery of the retina, and practically not through its central portion. The periphery of the retina is for night, or inexact vision. The pupil dilates at night to expose this area.

What I want to put before you especially is that the field of vision contracts *pari passu* with the progress of the disease. To the best of my knowledge this issue has not been brought forward up to the present time. Contraction of the field of vision in a vague sense has been noticed, but it has not been emphasized as a uniform fact, and as a consequence it was useless and not used in the examination of malingerers.

AN ILLUSTRATIVE CASE

Many years ago a British sportsman came to me about his night blindness. He was 55 years of age, and had been a military officer. He gave a graphic description of the progress of this symptom of its slowness and steadiness, until he had to read by the word at the time of his consultation with me, his field being no larger than a word. As is common in such cases, his distant vision was good enough for target shooting. His field for distant vision was so small that the bird came into the field and was out of it before he could pull the trigger. My clinic having plenty of such cases, I proceeded to examine their fundi, their field of vision, and the reaction of their pupils to light. I found that the sportsman's description was correct in every case, namely, that the contraction of the field of vision progressed *pari passu* with the progress of the disease; the reaction of the pupil I had already observed.

DETECTION OF MALINGERING

From the point of view of diagnosing the case of the malingerer, his is always an early case; hence the condition of the retina does not help. If it is a genuine case, there is no more poorness of the retina than we see in health in many cases. The malingerer's is so early a case that the reaction of the pupil to light does not help, as it is so little altered. Shades of sluggishness in the reaction of the pupil to light require a highly trained eye to detect them, and for these reasons we may as a rule throw this symptom overboard in the diagnosis of malingering.

The size of the field of vision we can take with scientific accuracy. The malingerer struggles against us, but the cards are all in our hands. For this reason —struggling—we cannot take the field of a malingerer by the indirect method; we should put him at his ease by appearing to believe that he is honest, by telling him that of course his day vision is very good, which he will admit. Having ascertained that our own field of vision is normal, we cover one of his eyes and fix his other eye with our corresponding eye, at a distance, say, of 15 inches, and proceed by the direct method to compare his field with ours. If it is the same in both eyes as that of the observer, he is not night blind, as this disease is equally advanced in each eye.

When on military duty in the war, I issued a confidential circular to medical officers on this subject, and I was later on amused at having two Sepoys who were invalided from field service for night blindness sent to me for an opinion. They had been coached by some Indian medical subordinate into whose hands the circular had fallen. They presented a field so small that the disease should have been of twenty years' standing. Their fundi were normal and the reaction of their pupils to light was also normal. I gave them the option of going on all kinds of duty, or of having a court martial. They promptly saluted and said, "All right, sir. Duty."

Contraction of the field of vision in this condition is constant and progresses uniformly *pari passu* with the progress of the disease.

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ABSTRACT OF DISCUSSION

Dr. George S. Derby, Boston: During eight months' service at one of the British eye bases in France, I had opportunity to see a great many soldiers who complained of night blindness. At one time it almost seemed as though an epidemic of night blindness was occurring, so that seldom a week passed during which a considerable number of men did not come down complaining of this symptom. During this time we saw, comparatively speaking, a large number of cases of retinitis pigmentosa, but the majority of them were pure cases of simulation. The men without retinal changes sometimes showed diminished vision, but no diminution of the light sense could be elicited by our rather rough tests and no field changes. The regular procedure was to report that these men showed no symptoms or signs characteristic of the disease of which they complained. In a certain number of the cases in which there was some basis for suspecting that there was present a true night blindness, the men were put under observation and watched to see how they acted at night. We

all thought we were night blind when we went to France because previous to this time we had not had the experience of going around so much in the dark. There were so many air raids that the lights were often out, and one had to go about a great deal in the dark. A rather uncommon test on some of these men was to put them in the hospital and give them a strong purgative when they went to bed, and then see how they acted when the purgative worked. We were mostly in tent hospitals, and what with the tent ropes, the drainage ditches and other obstacles, it was hard to steer a proper course in the dark. Of course, there were many cases of true night blindness. One man that I particularly remember was a Y. M. C. A. worker who had passed an eye test before he went to France, but he was absolutely helpless in the dark. He had a marked retinitis pigmentosa, a very small visual field, and was utterly unable to get about in the dusk and darkness.

DR. T. B. HOLLOWAY, Philadelphia: I should like to ask Dr. Smith whether he does not consider that the size of the field is indicative more of the stage of the disease than of the duration? I ask this question because I have not infrequently found at the Overbrook School for the Blind that some of the youngsters so affected had markedly contracted fields.

DR. HENRY SMITH, London, England: The field of vision and the contraction of the pupil are in harmony. Of course, some of these cases occur early, but they usually do not come to this advanced stage in childhood.

DR. ALLEN GREENWOOD, Boston: Dr. Derby said that night blindness might be partially due to being in unaccustomed places in the dark. As a boy I used to be the leader in going around in dark places and finding things, feeling that I could see more than my companions. Owing to my probably smaller pupil, from being older, I found, after reaching France, that I was considerably disturbed by having to go about in the dark. Usually I would have become accustomed to the darkness, but, with the lights all out as they were in France, I was temporarily night blind. I am sure I am not night blind at the present time, and I am equally sure no one would accuse me of malingering; but there was a definite disturbance in my getting around at night in France. Dr. Derby will remember that many times he took me by the arm and helped me down the sidewalks so that I could get along comfortably. We did see a number of cases of retinitis pigmentosa, and Dr. Derby has referred to the Y. M. C. A. worker who was helpless when walking in the streets at night. The observation which I wish to make in regard to what Dr. Derby has said is that many people in strange places at night are more or less night blind, and many of the soldiers who complained that they could not see at night were not malingering, nor were they truly night blind.

DR. GEORGE E. DE SCHWEINITZ, Philadelphia: It might be interesting to refer to an analysis I recently made of 101,127 ocular disorders as they had been listed in reports received from the "eye services" of various base and general hospitals in operation during the past war in this country. In this statistical tabulation there were recorded 132 cases of night blindness. Of these, 102 were associated with pigmentary degeneration of the retina, or other types of pigmented chorioretinitis, and thirty were unassociated with ophthalmoscopically evident fundus changes. During the war, exclusive of retinitis pigmentosa, the well-known determining causes of "night blindness" were operative, namely, exposure to strong light and glare, defective nutrition, autotoxemia, a diet deficient in fat and albumin, disease of the liver, alcoholism, etc.; also great fatigue, loss of blood, and refractive error, especially myopia and astigmatism. Common symptoms were reduced vision in diminished light, and constricted visual fields, especially for blue. A noteworthy group, almost invariably ametropes, was composed of those men who became conscious of their defective sight because for the first time in their lives they were forced to live a nocturnal life, and could contrast their vision with that of other men who were normally sighted. Sometimes the eyegrounds were normal; sometimes they showed defective pigmentation. These patients have been described by Marc Landolt as "nocturnal amblyopes." One ophthalmoscopic appearance, described by Augstein as the "white-gray fundus," I have not observed, but it has been attributed to decoloration of the pigment epithelium. Naturally, a certain number of nocturnal amblyopes were malingerers.

DR. HENRY SMITH, London: I presume that most of you would ultimately agree with me that you can prove anything with statistics. I presume it would take several dozen locomotives to haul the medical records of the great war of the different nations. From observation of the way these records were made, I feel that if somebody could put a match to the whole lot it would do a great service to our heirs and successors. It is a pile of rubbish, although in saying this I am expressing only my own opinion. If you were to ask a leading ophthalmologist to make out a statement of the progress which ophthalmology has made through the great war, he probably could do it on a sheet of note paper. I have seen a lot of statistics bearing on night blindness, and they would seem to prove anything about this condition. I think a few strips of rattan would cure night blindness better than would a lot of specialized foodstuffs.

SQUINT: WHEN SHALL WE OPERATE?*

A. S. GREEN, M.D.
AND
L. D. GREEN, M.D.
SAN FRANCISCO

One of the most troublesome questions that arise in the practice of ophthalmology is what to do when confronted by a patient with concomitant squint. Shall we advise operation or shall we institute nonoperative measures in the hope of straightening the eyes? Which offers the better prospect for success in conserving vision and removing the deformity?

It is obvious that where success can be attained by nonoperative means, that should be the method of choice. The nonsurgical treatment consists of wearing glasses to correct any error of refraction, fusion training, periodic atropin instillation in the better eye, occlusion of the fixing eye, etc., methods which have been fully covered by other writers. The surgical treatment also has received endless attention, and innumerable methods have been devised for operating on the muscles for the correction of squint. We are not lacking in the number of methods, surgical or nonsurgical, but we are not at all agreed as to when to employ them. How long shall we try nonoperative methods, and when shall we operate? Opinions differ.

It would seem that the condition of squint, in spite of the many variations of the deformity, should have more or less well defined indications for a given procedure. But we have been unable to find in the literature any specific indications for operation such as are given for glaucoma or cataract. The textbooks also are vague on this point.

According to our observations, based on a careful study of 260 private cases, less than 25 per cent. of squinting eyes that come to the ophthalmologist are improved by nonsurgical methods. It thus leaves over 75 per cent. of these patients to be corrected by operation or the alternative of going for the rest of their lives with the deformity. The small proportion of patients amenable to nonoperative means is no doubt due to the fact that less than 50 per cent. of the patients who consulted us were under the age of 8.

In our series only 7 per cent. were entirely straightened by nonoperative means, when carefully measured. And of these patients a large proportion resumed their

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squint when the glasses were taken off. The latter cases therefore could not all really be considered entirely successful, as the patients were dependent on crutches, so to speak, and were no more cured than is a patient with hernia who has not been operated on and who is dependent on a truss. In this connection we wish to emphasize the point that we consider a result successful only when after careful measurement the eyes are proved to be parallel.

Table 1, compiled from our case records, gives a summary of our findings.

TABLE 1.—FINDINGS IN TWO HUNDRED AND SIXTY CASES

	Number	Per Cent.
Patients over the age of 8	140	54
Patients 8 years of age or under	120	46
Patients improved	42	16
Patients cured	18	7
Patients unimproved	200	77

We have recorded all cases as cured in which the eyes were straight with or without glasses, irrespective of the visual condition or fusion. None of the eighteen cured patients were over the age of 8, while thirteen of these, or 72 per cent., were 6 years of age or under.

We believe that great harm has resulted from the advice so frequently given by physicians to parents to wait until puberty to see whether the child will outgrow the squint. Parents should be taught that squint must be corrected long before puberty if the sight in the deviating eye is to be saved and the eye straightened. When the nonoperative treatment is to be instituted, it must be begun before the age of 8 or before commencing school if we are to expect any degree of success. After that age the chances are very slight that the fusion faculty can be developed, whereas the danger that the vision in the squinting eye will be lost is greatly increased.

The early correction of squint is also desirable for the mental or psychic effect it has on the patient. This is a phase that has received far less attention than it deserves. We are all familiar with the pathetic picture presented by the squinting child who refuses to play with other children because he is mocked and jeered at. He becomes shy, and sensitive of his deformity to such a degree as to produce an undesirable influence on him during his mental and physical development. Give the child the chance to which it is entitled. In adult life, in which the social and economic rivalry is so keen, the deformity also acts as a great handicap. We believe it to be self evident that early correction of squint is desirable. It is a great mistake to put off correction of our patients in the hope that the eyes will straighten eventually as the child develops. The thing to do is to decide on our course of procedure and then to act accordingly. But here lies the difficulty.

ABSENCE OF WELL DEFINED PROCEDURE

In order to determine the opinion of the medical profession on the subject, we sent out questionnaires to the ophthalmologists of the country. The questions were:

1. Have you a definite method for determining when to operate for comitant squint?
2. What is your method in brief?
3. Do you wait for a certain age before operating?
4. How long do you employ nonoperative methods before operating?

We received 235 replies.

To Question 1, eighty-five answered "no," while 150 answered "yes."

To Question 2, only eight gave a method which would enable them to decide in a given case whether to operate at once or first to try nonoperative means. Two hundred and twenty-seven gave nothing more definite than trying glasses, fusion training, etc.

The answers to Question 3 we divided into three groups

(*a*) Those who operate before the age of 8 numbered eighty-one, or 34.5 per cent.

(*b*) Those operating between the ages of 8 and maturity numbered seventy-eight, or 33 per cent.

(*c*) Those who did not limit themselves to a definite age numbered seventy-six, or 32.5 per cent.

The answers to Question 4 were too generalized to be given in detail, but served to indicate that the majority preferred to try nonoperative methods for periods varying from a few months to as long as twenty years in some cases.

From these replies we are led to conclude that very few ophthalmologists have any well defined procedure for handling a case of squint. These answers also indicate that there is a general tendency to defer operation later than we deem advisable to obtain the best results.

CAUSATION OF SQUINT BY MUSCULAR OR ANATOMIC ANOMALIES

Ample evidence may be brought forth to show that, in the vast majority of cases, squint is a muscular or anatomic anomaly, not primarily a lack or faulty development of the fusion faculty.

Our experience leads us to support the view that the lack of ability to perform fusion in most of these cases is not so much the cause of the squint as the result of it.

If parallelism were dependent entirely on fusion, why is it that in cases of admitted primary lack of fusion, as in alternating squint, the eyes may be straightened and remain straight after operation? The same holds true in those cases with amblyopia in the squinting eye in which there is an absence of fusion. If these eyes crossed because of lack of fusion in spite of normal muscles, then an operation that strengthens one muscle or weakens its opponent should cause the eyes to deviate in the opposite direction instead of maintaining them in a condition of parallelism such as follows a properly performed operation.

We know that pathologic conditions of the media or fundus are frequently associated with squint, but we also know that many eyes with such pathologic conditions are straight, tending to show that faulty muscles or other anatomic anomalies, and not the pathologic condition of the media or fundus, determine the position of the eyes. Furthermore, the degree of squint usually remains fairly definite in amount even under deep anesthesia unless of the accommodative type, thus showing that the eyes are held in their constant relationship by their muscles. Nor is it true that the eyes always lose their parallelism or become divergent under general anesthesia or after death unless there existed prior to this a muscular or accommodative anomaly.

In conjunction with several capable anesthetists, we have for the last year been studying the position of the eyes under general anesthesia. Enough cases have been observed to help us arrive at fairly definite conclusions. In the first place, the anesthesia required for general surgery is not sufficiently deep to produce the complete relaxation which is necessary to enable us to determine the static condition of the ocular muscles. Faulty deductions are likely to be drawn unless the patient is at

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least as deeply under as is required in gallbladder work. We have found it to be untrue that all eyes diverge under such deep anesthesia; some converge, while the majority remain straight, apparently depending on the anatomic conditions present.

To help us further in our investigations as to the static condition of the ocular muscles and the influence of fusion on the position of the eyes, we availed ourselves of the opportunity offered by the coroner's office, where we carefully studied the photographs of 200 cases taken for identification purposes, in which the eyes were plainly visible. These pictures were taken at a time varying from immediately after death to twenty-four hours later. The majority were photographed within ten hours following death. The value of such pictures for purposes of study is as great in every way as the study of the dead body itself, and in many respects superior because they can be studied minutely at leisure. We considered only those cases in which the pictures were taken so near the demise of the individual as to give a distinct corneal light reflex. This enabled us to tell with a fair degree of accuracy the relative position of the eyes after death. Table 2 shows the position of the eyes examined.

TABLE 2.—POSITION OF EYES AFTER DEATH

	Number of Cases	Per Cent.
Inward deviation	4	2
Outward deviation	25	12.5
Doubtful	14	7
Parallel	157	78.5

In the doubtful list we included all cases that seemed to deviate slightly but not sufficiently to warrant us in including them under the deviations.

Thus, according to our investigations, the contention that the eyes are held parallel primarily by the fusion faculty does not seem to be entirely correct.

THREE GROUPS

Some cases of squint are probably purely accommodative in the beginning. Others are both accommodative and muscular. In both instances the muscles become increasingly involved if not corrected. In convergent squint the internus becomes cramped and generally hypertrophied, while the externus becomes flaccid and undergoes more or less atrophy. The converse holds true in divergent squint. If we accept the foregoing deductions we shall be in a better position to decide in a given case whether to operate or to try nonoperative methods. This will be more easily done by classifying our squint cases into three groups: Group 1, nonoperative; Group 2, indeterminate or delayed cases, and Group 3, operative.

In Group 1 are included all cases that prove on examination to be amenable to orthoptic treatment, and these comprise about 7 per cent. of all our squint cases. Practically all of these patients are under 8 years of age. In this group we also include those cases of unilateral fixed amblyopia in which the deviation is less than 15 degrees. These need no attention for cosmetic reasons.

Group 2 includes those cases in which the examination shows that a partial correction is possible by orthoptic methods, and that persistent muscle and fusion training with all the means at our command may finally result successfully. But even in these cases, which comprise about 16 per cent., success will rarely follow if the patient is past the age of 8.

It is generally conceded that fusion cannot be developed after the age of 6 or 7. It then follows that the earlier the age at which the eyes can be made parallel, by whatever means, the better the prospects for the development of the fusion faculty.

Group 3 is by far the largest, as it includes about 77 per cent. of all our convergent strabismus cases above the age of 8, and all divergent cases associated with hypermetropia. This percentage could no doubt be greatly reduced and many operations avoided if we would impress parents with the necessity of bringing their children for treatment when the squint is first noticed. These are the cases in which we may operate immediately if we can decide that our case belongs to this group. It is essential, therefore, to have a method by which we can determine whether orthoptic treatment or operation will be necessary to obtain the desired parallelism.

METHOD FOR DETERMINING WHETHER OR NOT OPERATION IS INDICATED

For our own guidance we have worked out a method which is simple and with us has proved very satisfactory. On the patient's first visit we carefully measure the degree of deviation with the Schweigger hand perimeter. This is simple, fairly accurate for practical purposes, and a child can easily hold it. We have drilled a hole about 4 mm. in diameter exactly above the mirror. With the perimeter placed before the deviating eye, the patient is directed to look through the hole at the distant muscle light, meanwhile covering the fixing eye with a card. When the patient says he sees the light with the deviating eye, he is told to hold the perimeter without moving it. The fixing eye is then uncovered, directed to the light, and the degree of deviation of the squinting eye readily noted on the arc of the perimeter and recorded. The parent or attendant is then given a prescription for 1 per cent. atropin ointment and thoroughly instructed how to apply it into the conjunctival sac for five days. At the end of that time cycloplegia should be complete. The deviation is again measured on the perimeter and the eyes refracted. The result of this examination practically decides whether or not an operation will be necessary. If the strabismus is due to an error of refraction or accommodation, the extrinsic muscles being normal, there will be a decrease in the amount of deviation. If the eye becomes straight, the case belongs to Group 1. Glasses correcting the entire refractive error are given and, in addition, exercises, atropin in the fixing eye, fusion training, etc., as indicated to promote binocular fixation.

If the eyes are partially straightened under the atropin, the case belongs to Group 2 and the same treatment is instituted as in Group 1. Six months are allowed for the eyes to straighten. If at the end of this time there has been no further decrease in the deviation, an operation should be performed. On the other hand, if there is an improvement during this time, orthoptic treatment is continued until such improvement ceases. In some cases, even when the glasses or other nonoperative measures do straighten the eyes, the remaining heterophoria produces such severe headaches or other symptoms of asthenopia that an operation may ultimately be necessary to obtain relief.

It has been our experience that when thorough cycloplegia does not at least partially straighten the eyes it would tend to prove that the strabismus is not of the accommodative type or due to an error of refrac-

tion, but is caused by an anatomic anomaly. Neither glasses, fusion training nor time will have any appreciable effect on the strabismus, regardless of the age of the patient. These cases belong to Group 3, and on such patients we operate immediately. After operation, orthoptic treatment may be undertaken with a much better chance for the successful development of binocular vision or fusion than before. There need be no fear that the eye will deviate in the opposite direction if the operation is properly planned and performed. Nor do we need feel uneasy that this result will follow later, any more than we would expect squint to develop in later life when the muscles were primarily normal.

CONCLUSIONS

1. Age is the greatest single factor in the nonoperative cure of squint. Treatment must be instituted before the age of 8, preferably when the squint first becomes manifest, even in infancy if necessary.

2. It is of vital importance that the family physician and the public be impressed with the necessity that the child have early attention, and not wait until puberty in the hope that the deformity will be outgrown. Procrastination means probable amblyopia in the deviating eye and operation later, in the vast majority of cases, for cosmetic reasons.

3. Operation should be performed in all cases in which there is no reduction in the squint under complete cycloplegia, irrespective of the age of the patient.

ABSTRACT OF DISCUSSION

Dr. Alexander Duane, New York: One cardinal principle can be laid down with regard to squint, namely, that the earlier the patients are seen and treated, the better. The diagnosis of a congenital squint and of the muscles affected can be made at the age of 6 or 7 months. In congenital squints examined early in life, the accommodative element is wanting. But this is often superadded in the course of the next two or three years; or, without there being a special accommodative element, a secondary acquired deviation may be superadded to the congenital squint—this secondary deviation being apparently the expression of an involuntary attempt to get the double images apart so as to be less disturbing. The point to remember is that in either case the superadded anomaly will be quite unlikely to yield to treatment unless the primary congenital anomaly is relieved by operation. Before operation is undertaken, however, full trial (six months at least) should be given of the glasses, and attempts should be made to cultivate binocular vision with the amblyoscope, the stereoscope, the red glass and bar reading. The amblyoscope and eventually prisms are further used for the still more important object of training the diverging or converging power and so getting the patient to reduce the angle of squint. In case of continuous and constant monocular squint, where we can prove the existence of amblyopia in the squinting eye (without corresponding organic disease of the eye), training of fixation of the squinting eye must be done. Continuous atropinization of the good eye will suffice for this purpose in only a small proportion of cases, since with any but a moderate degree of amblyopia the patient will not fix with the poor eye even when the other is atropinized. The only way, then, is to bandage the good eye for as long a period each day as the patient will stand it and keep the treatment up for weeks and even months, depending on the degree of amblyopia and the age of the patient. It should be noted, however, that this treatment must not be absolutely continuous—otherwise we shall run the risk of depressing the vision of the good eye and increasing the angle of squint. It should, on the contrary, be alternated with treatment by the amblyoscope, etc., for developing binocular vision and binocular fixation. The latter treatment in particular should be kept up as a preliminary to operation and in conjunction with it.

Dr. Oscar Wilkinson, Washington, D. C.: I am preparing a monograph on squint, because I feel that this is the most generally neglected and least efficiently treated branch of ophthalmology. It is pathetic to have a child 12 years of age or older brought to you with eyes crossed since early babyhood, with amblyopia exanopsia and general mental deficiency, due directly to the ill advice that nothing can be done until the child is 12 years of age. I do not entirely agree with the remarks with reference to fusion, as I am inclined to think that a weak or undeveloped fusion center or a deficient nerve stimulus has more to do with the cause of squint than many are willing to accord it. When shall we operate? That depends on one thing only: As soon as you know that the amount of squint is not decreasing under atropin, glasses and exercises, operate. The sooner the better, if you do the right operation. This cannot be determined under 6 months, or a year in many very young children. The amount of deviation must be measured most accurately on several occasions and recorded as minutely in order to determine what progress is being made. In children from 8 to 10 years of age this can be determined much sooner, and when no decrease is observed, operate. In older subjects no more time is required than is necessary to fully atropinize the case, fit the proper glasses, and record the amount of deviation with and without atropin.

Dr. A. E. Davis, New York: I think that the authors have taken an extreme view when they assert that muscular anomalies are the chief causes of squint. If such were the case, concomitant squint must be considered as a monocular affection and should be so treated, when, as a matter of fact, it is a binocular affection, with few exceptions, brought about by lack of proper coordination of the ocular muscles, due to weak or faulty fusion function, and this faulty fusion is brought about in the mass of cases by dissimilar images in the two eyes, as the result of refractive errors, especially astigmatism, corneal or vitreous opacities, or defects in the perceptive part of the eye, the retina, etc. With the exception of muscular anomalies, which are rare, and in paralytic squint (which cases should not be considered here), concomitant squint is certainly bilateral and not unilateral. In fact, it is for this very reason that we operate on both eyes in comitant squint, which we would not do if the squint were due to a muscular anomaly. As to the time of operation, I do not think we should be too hasty in arriving at a decision to operate. In those cases in which there is a false fixation, I operate at once. In all other cases, I do as the authors and Dr. Duane said: try out thoroughly orthoptic treatment. When the squint ceases to decrease under treatment with atropin, glasses, exercise, etc., I operate at once, no matter what the age of the patient.

Dr. David W. Wells, Boston: How young were your patients? Is there no age limit?

Dr. A. S. Green, San Francisco: We operate on children as young as 3 years. When we have determined that the squint is not of the accommodative or refractive type we do not postpone operation. We never do a complete tenotomy. By doing a tucking operation, and, if the deviation is very marked, a partial tenotomy with it, we are not afraid to operate at any age. What we have tried to bring out in this paper is the method of determining when to operate. In our opinion it is unnecessary to postpone operation, as some ophthalmologists do, for a period as long as twenty years. We believe we can determine the matter in a few days by first measuring the deviation and then producing complete cycloplegia. At the end of five days deviation being again measured and the eye refracted, we will know whether the squint is due to an accommodative or a refractive error, or is caused by an anatomic anomaly. We do not attribute all forms of squint to muscular anomalies. We recognize that fusion has a great deal to do with holding the eyes parallel, but we do maintain that the theory that faulty fusion is the cause of practically all forms of squint is asserting too much. Some are due to congenital anatomic anomalies of the eyes, muscles or orbit, and many cases of squint are due to faulty location of the macula. As to the method of operating, we purposely left that out. It is not the subject under consideration in this paper. We never do a complete tenotomy in convergent squint. The reason there is such fear of early operation for squint is that heretofore many ophthalmologists

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have simply cut and slashed. I have seen operators in this country and abroad who not only do a complete tenotomy, but they cut all the surrounding tissues, going clear to the superior and inferior recti to catch all the strands. When an eye like that eventually deviates outward it is not a bit surprising, and it is because such eyes have deviated outward in the past that many ophthalmologists have become so ultra-conservative that they do not operate at all or operate very late in the patient's life.

MYASTHENIA GRAVIS

REPORT OF THREE CASES *

WILLIAM CAMPBELL POSEY, M.D.
PHILADELPHIA

CASE 1.—*History.*—E. G. B., aged 67, man, consulted me June 15, 1918, on account of drooping of the left eyelid, which had first appeared ten days previously. The drooping was not noticeable in the morning, but became more and more pronounced as the day wore on. The onset had been sudden and without known cause. There was an associated so-called burning feeling about the eye, with ocular tire, and for a few days before consultation, there had been pains of a mild character at the back of the neck on the same side. He had not seen double. It was ascertained that the patient, who was one of the heads of a large establishment supplying our government and that of the allies with war material, had been, in consequence, under an enormous strain, getting but little rest and at all times working under great pressure. Two days before consultation, he had been on the witness stand all day, and though the affected eye had been fairly wide open in the morning, by afternoon the lid closed completely.

Examination.—There was moderate ptosis of the left lid, the border of the lid reaching to the upper margin of pupil. There was no edema. The conjunctiva was healthy. There were no marks of an inflammatory nature about the orbit. There was no exophthalmus. The right lid was in normal position. Ocular movements of both eyes were free in all directions, except upward motion in the left eye, which was somewhat restricted. The pupils were 4 mm. in size and reacted equally and freely to light and convergence stimuli. There was spontaneous homonymous diplopia at 5 meters, the image of the left eye being higher. Four degree prism base up before the left eye produced fusion of the images. Further study of the diplopia demonstrated paresis of the left superior rectus muscle. The ophthalmoscope revealed moderate sclerosis of the vessels with some pallor of the temporal halves of the optic nerves. A study of the visual fields revealed a slight peripheral contraction of the upper and temporal field for form and some restriction all around for colors. In the left eye, there was contraction for a 5 mm. white object to 30 degrees above, extending laterally on both sides. There was marked contraction of the color fields concentrically. The patient gave marked evidences of exhaustion throughout the test, on account of which it was necessary to make frequent interruptions.

O.D. + S 1. D. ⌒ — C. 1.5 D. ax. 90° = 5/5.
O.S. + S 0.62 D. ⌒ — C. 1.25 D. ax. 80° = 5/6.

This correction was ordered with a prism 1½ degrees base down in the right eye and a prism of similar strength base up in the left eye, with + S. 2.5 D. as bifocals.

As the patient had had a slight cold some weeks before, he was referred to Dr. Freeman for rhinologic examination and to Dr. Pfahler for roentgenograms of the sinuses. Both of these reports were negative. A neurologic basis for the paresis of the elevator of the lid and superior rectus muscle of the left eye was then sought for and the patient was referred to Dr. Spiller, who reported thus: "The masseters and muscles innervated by the facial nerve contract normally. Touch and pain sensations are normal in the face. Patient has no complaint except in regard to the drooping lid. The grasp of each hand is powerful, the biceps and triceps reflexes are present, but not very prompt. Sensations of touch, pain, position, vibration, also stereognosis and diadokokinesis are normal in each hand. The patellar reflexes are present but are not prompt. He does not have Romberg's sign.

The ocular condition is omitted as this is given in Dr. Posey's notes. It is important, however, to state that when he is made to look upward at my finger held above his head, the left upper lid gradually falls but not enough to cover the pupil, and he begins to see double as exhaustion begins; but with effort in renewed innervation he can overcome the diplopia.

June 18: The patellar reflexes are very weak; the right may be the weaker. The Achilles reflex is weak on the left side and not obtained on the right. Sensations of pain and position are normal in the feet. At my request he has worn a dark glass over the left eye since he first came to me, but he shows no improvement in the ptosis within so short a time."

Dr. Spiller rather inclined to a diagnosis of myasthenia gravis, though he pointed out that the patient had no rapidly increasing weakness in the muscles of mastication while eating and none in any other muscles on use. A Wassermann reaction was requested, but not consented to. Upon the advice of Dr. Spiller, mixed treatment was prescribed and absolute rest from all business cares for at least two years was insisted upon.

We did not see the patient again until the middle of October. Dr. Spiller's notes tell the story of how the patient passed the interval.

Course.—"He came to me again the middle of October, 1918. He continued working in his business until July 15, then went to Atlantic City and took a complete rest. He became gradually worse before he went to Atlantic City. He became completely tired out; the ptosis of the left upper lid was also more pronounced. He staid in bed at Atlantic City all day except for dinner, and after dinner went immediately to bed again.

"He remained in bed two weeks and improved considerably. The left eye began to show a diminution in the ptosis and the lids to remain open. He had been very weak and had no desire to walk; he tired easily and staggered in walking. He began ocean bathing after two weeks at Atlantic City and felt vigorous. He remained in Atlantic City ten weeks and improved daily. He came home feeling better than he had for two years.

"He resumed hard work on his return home September 17, and after one week, the right upper lid began to droop and soon the left upper lid drooped again. Before he left Atlantic City he began to have difficulty in chewing, this was slight at first, and chewing caused some pain, a dull tired feeling which was at times severe throughout the jaw and throat, and he could not swallow with ease and at times, indeed had difficulty in swallowing at all.

"He has moments when he can not speak from weakness of the muscles. He takes semisolid food, but no meat unless it is ground up. He is weak in all his limbs. Recently in a train, he noticed his eyes became almost completely closed, so that he could not see, then in a short time the condition would improve. This was on Monday, October 14. He had been working hard on an address Saturday night and all day Sunday. On leaving the train, he rode in a taxi and became so tired in the lower part of his face and throat that these parts ached, and he felt as though he would not be able to deliver the address, as he could not fully close his jaws. After he had taken a nap for about fifteen minutes, he was sufficiently recovered to deliver the address. He complains of much sensation of fatigue in the neck and shoulders, so that it is difficult for him to hold the head erect. In eating he begins a meal well but soon tires. He is always more vigorous in the morning.

"When he looks upward at my finger, within a minute, the right upper lid falls so as to cover the pupil, and the left upper lid acts similarly but more slowly. Voluntary closure of the lids for a minute enables him to raise the right upper lid to just above the pupil. He has marked persistent ptosis of the right upper lid and partial ptosis of the left upper lid.

* Read before the Section on Ophthalmology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1912.

Biting on an object causes weakness of the jaws so that contractions of the masseters become weak. The tongue and soft palate are normal. Diadokokinesis is well performed by each hand without increasing weakness. During the time he wore the smoked glasses he was in better condition."

My notes taken at this time substantiate Dr. Spiller's observation of the drooping of the right lid as well as that of the left. The hyperphoria was still corrected by a 4 degree prism and the study of the double images revealed no change from that made in June. The fields of vision were normal for form and colors. Absolute rest was insisted upon and strychnin administered.

Dr. Spiller's notes continue as follows:

"Oct. 23, 1918: He has staid in bed most of each day and the upper lids droop a little. He still has difficulty in eating but has improved considerably during the past week.

"Nov. 6, 1918: He is very weak and cannot lift the upper limbs to do anything and becomes tired very quickly. The effort to dress in the morning is very fatiguing and brushing his hair causes his lids to droop, possibly because he looks in the glass. The pain in the jaws is very annoying and extends into the throat, and he can hardly close the jaws. Sometimes when swallowing he will be unable to continue and the fluid will come out of his nose. The diplopia is worse. Dr. Kolmer reported the Wassermann test of the blood as normal."

An examination of the eyes made Nov. 6, 1918, revealed an increase in the hyperphoria to 7 degrees and more complete ptosis in each eye. The pupils were unaffected. No further change was noted in the eyegrounds. Six degrees of vertical prism strength was incorporated into the correction to relieve eye strain.

I saw the patient upon two subsequent occasions, i. e., on November 18 and December 4 of the same year, in a hotel in Philadelphia, where he was resting in bed under Dr. Spiller's orders. But the ocular condition remained unchanged, with the exception that the ptosis and the paresis of the left superior rectus muscle became much more pronounced after the slightest fatigue from the examination.

Dr. Spiller's final reports are as follows:

"Further notes were taken by me in May, 1919, but they were destroyed by an insane patient who obtained possession of my notebook by deceit. The patient improved by avoiding exertion in every way and gradually his symptoms became very much less and he seemed to be almost well. He wore a chin support for a long time, to avoid tiring the jaws. He talked little and ate with great discretion. Dr. Jonas made a careful study of his excreta but found nothing of importance. Strychnin was given for a considerable time."

About this time (April 14, 1919), the patient saw Dr. de Schweinitz, who has kindly given me the following abstract of his notes:

April 14, 1919 (First Visit): Vision of right eye, 5/6; Vision of left eye, 5/15; with correction which you had given October, 1918, namely:

O.D. $+1 \supset +1.50$ axis 90 $\supset$ 1.50 degree prism base down.
O.S. $+.62 \supset -1.25$ c. axis 80 $\supset$ 1.50 degree prism base up.

There was no ptosis; pupils reacted to ordinary stimuli, and there was no failure in the ordinary ocular rotations. With a red glass, diplopia was evident—the images were fused with the eye fixing a point on a level with the ocular globes 6 meters distant by prisms 7 degrees base out and 3 degrees base down over left eye. Both disks were pale. There was distinct retinal vessel sclerosis and a few small hemorrhages below the left disk. Visual fields for white and colors were moderately contracted. About one week later there was esophoria 4 degrees, L. H. 1 degree.

May 2, 1919, or one month after first examination:

O.D. $+1.50$ c. axis 180 6/5 = 5/6.
O.S. $+0.75 \supset -1.25$ c. axis 75 6/7.5.

There was orthophoria with Maddox rod at 6 meters.

He was seen from time to time for the next four months, without noting any material change, and on Sept. 7, 1919, this refractive result was obtained:

O.D. $-0.25 \supset +1.50$ c. axis 180, 6/5.
O.S. $-0.25 \supset +1.25$ c. axis 170, 6/6 =

Lateral orthophoria; L. H. 1 degree; there were slight evidences of perinuclear change.

The last examination (Nov. 6, 1919) revealed the following conditions: O. D. V = 6/6; O. S. V = 6/10; many linear and round hemorrhages along the temporal sweep of the upper vessels of the left eye, and a few hemorrhagic striae in the macula. No hemorrhages were noted in the right fundus, but vessel sclerosis was marked; there was no diplopia.

Early in January, 1920, a very thorough examination of the patient was made by Dr. Lewellys F. Barker, of Baltimore, and his associates Dr. H. M. Thomas and Dr. C. Macfie Campbell.

I am indebted to Dr. Barker for the following analysis recently sent me.

"The essential features, in my opinion, as shown by the study were:

"1. Myasthenia with asthenic bulbar symptoms, dysmasesis, dysarthria, dysphagia, ophthalmoplegia, etc.

"2. Oral sepsis. There were two infected teeth.

"3. Achylia gastrica, occult blood in the feces and a positive Wolff-Junghans test in the gastric contents. There were, however, no roentgen-ray nor other evidences of a neoplasm of the gastro-intestinal tract.

"4. Obesity. He was 70 pounds over his calculated ideal weight.

"5. Atherosclerosis with moderate arterial hypertension, diffuse dilatation of the aorta and slight albuminuria.

"6. We had hoped to make some examinations which were omitted by the patient, namely, that of the cerebrospinal fluid and the histologic examination of a small piece of muscle.

"The therapy advised included:

"1. The extraction of the two teeth and the eradication of the oral sepsis.

"2. Dilute hydrochloric acid after meals.

"3. A dietetic and hygienic regimen directed toward the obesity, the arterial condition and the myasthenia."

The patient died in August, 1920, suddenly, probably from cardiac failure, two and one-half years after the first appearance of the disease. According to his wife's statement, there had been no marked change in his condition after Dr. Barker saw him, though for a month or more before his death, the eyes and jaws seemed better.

COMMENT

The foregoing report is an excellent example of that rather uncommon condition known as myasthenia gravis, which has been cautiously defined by McCarthy in his excellent article in Osler's Modern Medicine as "a disease with fatigue symptoms referable to the muscular system, due to an exhausted condition of nervous enervation, without definite pathology in the nervous system, and with minor changes (lymphocytic infiltration) in the muscles."

First described by Wilks, in 1877, and Erb, in 1878, as a form of bulbar paralysis without anatomic change, as the years have gone by and our knowledge of medicine has increased, the conception of its identity has gradually changed, so that Jelliffe and White, in the last edition of their textbook on Diseases of the Nervous System, 1919, place myasthenia gravis under diseases of the muscles, though they acknowledge that the clinical position of this disorder is still very uncertain. They go on to say that the disease is regarded by some as a contrast picture to tetany and due to vegetative nervous disturbance conditioned in part by a polyglandular endocrinopathy, it having been shown of late that the striped muscular system is provided with vegetative nerve fibers which undoubtedly regulate the muscular metabolism.

Although the origin and nature of myasthenia gravis have still to be definitely determined, its symptomatology and course are now well defined, thanks to a number of careful analyses which have been made of the nearly 300 cases which have been reported during

the last thirty years. Starr[1] found 250 cases in the literature up to April, 1912. The great majority of these reports were made by neurologists, but an increasing number are by ophthalmologists. As revealed by these studies, myasthenia gravis is characterized by an abnormal liability of voluntary movements to tire throughout the whole body, the muscles supplied by the bulb being particularly liable to be affected. It usually assumes a chronic form with periods of remissions and exacerbations, the muscular symptoms being always aggravated by fatigue and frequently disappearing wholly after periods of rest.

The ophthalmologist is often the first to be consulted in myasthenia gravis, by reason of the fact that ptosis or diplopia is the initial symptom in many of the cases. According to Uhthoff, drooping of the lid is the first symptom in nearly one-half of all cases and is absent during the course of myasthenia gravis in but 18 per cent. of the cases. The ptosis is usually bilateral, though it may be present in one eye for some time before appearing in the other. Like all varieties of muscle weakness characteristic of this disease, the ptosis manifests itself usually after fatigue and disappears for a time after rest. It may be provoked by steady fixation, by violently raising the lids, or by lack of sleep. It is usually absent after sleeping and comes on towards evening. The ptosis may disappear for days, even months, only to reappear at the end of these periods. In the case of Karplus cited by Uhthoff, the ptosis appeared but once or twice during the year and disappeared at the expiration of several weeks.

The literature shows that paralyses of the external eye muscles initiate the disease in about one third of the cases, and that these, like the ptosis, can disappear and reappear. Affection of these muscles varies from a slight weakness or paresis to absolute paralysis. The elevator of the lid is usually implicated simultaneously, in which event the affected eye muscles need not necessarily be those supplied by the third nerve, for the external rectus and superior oblique muscles may also be involved. The nystagmus which was noted by some writers was probably not true nystagmic movements, but rather the interruption of the normal rotations of the eyes due to the hesitating and slow efforts of the weakened muscles to follow the fixing object sufficiently rapidly through the field of excursions. Temporary loss of converging power, associated with ptosis, has been reported, never with pupillary involvement. Indeed, the internal muscles of the eye seem to be affected but rarely in myasthenia gravis, though the literature contains occasional references to associated sluggishness of the pupils to light stimulus and weakness of accommodation.

Involvement of the facial, hypoglossal or accessory nerves is the initial symptom in about 25 per cent. of all cases, and weakness of the arms and legs in a still smaller percentage. An interesting exception of the latter is reported by Noica and Enesen in which the first symptoms appeared as a lack of power in the ring and little finger of the left hand. A few days later a similar weakness was observed in the same fingers of the right hand. Little by little the loss in power extended to the entire hand and arm, both arms being finally affected in their entirety. Double vision appeared two months later.

1. Starr: Textbook of Nervous Diseases, Ed. 4, p. 768.

A study of the literature indicates that the disease manifests itself under two types: a severe form which terminates fatally, as in the first case that I reported, and a milder one in which the symptoms are confined to the eyes and complete recovery is the rule.

As instances of the latter type, may be mentioned the following two cases:

REPORT OF CASES

CASE 2.—*History.*—F. H., aged 20, electrician, consulted me, Nov. 30, 1903, with the history that for the last ten days he had experienced considerable difficulty in reading during the latter part of the day, on account of blurring of the letters and general indistinctness of vision. Both lids drooped also, the right especially, so that he had difficulty in keeping the eyes open. A few days before consultation, while walking in the snow, his upper lids drooped and he could barely raise them, until he had turned his back to the light and winked vigorously.

It was elicited that the patient had always been very nervous, anxious and easily worried, and in recent years had been overworked and under great mental strain. The affection of his eyes had come on suddenly; was only manifest when he was very tired, and never present after sleep. He had had some difficulty in the close use of his eyes a year previously, which passed away after a short period. There was a family history of asthenopia.

Examination.—There was moderate ptosis in each eye, most pronounced, however, in the right, the right lid overhanging the cornea and obscuring 1 mm. of the upper part of the pupil. In the left eye, the upper lid reached the upper part of the pupil only. Overaction of the frontalis muscle, as evidenced by deep horizontal grooves in the forehead, accentuated on efforts to raise the lids.

At 5 meters there were right hyperphoria of 1 degree, esophoria of 8 degrees; orthophoria at the reading distance. There were no changes in the eye-grounds. The pupils were 4 mm. in each eye and reacted equally and freely to light and convergence stimuli. The range of accommodation was normal.

O.D. — S. 0.25 D. ⌒ + C. 0.50 D. ax. 170° = 5/5.
O.S. + C. 0.25 D. ax. 160° = 5/5

This correction was prescribed for near use; injunctions were given regarding proper care as to the health, etc., and the patient was referred to Dr. W. G. Spiller for a neurologic examination. Dr. Spiller reported that:

The parents were dead. Little was known of the father, the mother had been very nervous and had died of paralysis, probably embolic hemiplegia. The mother had headache often. The patient had had four sisters, all were dead of causes unknown. Most of them died in infancy. He had had four brothers, only one of whom was living. The brother who is living is a clergyman and is very nervous.

The patient had always been nervous. At school if he had to speak he would be "scared to death" and tremble all over. Even now he trembled greatly if called upon to play the banjo. When a child he would jump in his sleep. He had not had much headache. He became very nervous when examined by a physician. He had always had much responsibility, and when he graduated from college he had had financial difficulties with his mother's estate. He started in business in June, 1898; in November, 1898, he was made chief clerk with eighty men under him, and in January, 1902, he had 280 men under him and was then made assistant to the vice president. In September, 1902, he came to Philadelphia as manager of the local house. Until January, 1902, he had night work four nights weekly on his personal affairs, i. e., attending to repairing houses without money to pay for it. All this caused him much worry, and some nights he went to bed exhausted. He smokes moderately. Occasionally he takes a glass of wine or something stronger, but is not alcoholic. He masturbated when about 15 years of age and occasionally masturbates during sleep, about once in ten days, and usually when he is very tired. He drinks tea and coffee. He went to Dr. Posey because his sight was not so good as it had been. The

masturbation had worried him very much. Memory and power of attention were not affected. He had never had anything to do with women.

He had never had any trouble with speech, which was normal. The movements of the eyelids appeared to be normal. Reaction to light was good in each eye. The pupils were about equal. There was no involvement of the seventh or motor or sensory fifth nerve on either side. Sensation for touch and pain was normal in all parts of the body. There was no distinct tremor of any part, but when he felt that he must keep still his head trembles. Resistence to passive movements was good in all limbs. There was no motor weakness anywhere. He was inclined to be constipated. There were no urinary symptoms. The biceps tendon, triceps tendon and wrist reflexes were normal in the upper limbs. The patellar reflex was exaggerated on each side. The Achilles jerk was about normal on each side. There was no ankle clonus. The Babinski reflex, tested on the right side, was not obtained. He did not lose motor power toward evening. There were no hysterogenic zones. The heart sounds were regular and there were no murmurs. When he was made to look upward steadily for about one minute, his lids began to droop, and within two minutes, the upper lid had almost completely fallen, especially the right, and he was unable to raise them. After resting two or three minutes, the drooping disappeared. Ophthalmic reflex on each side. The tongue protruded straight; it was not atrophied and was without fibrillary tremors.

The patient returned a week after the first consultation saying that the glasses had helped his reading, but that he had recently seen double on the street. A searching test of his ocular movements was made and after a time double images appeared, homonymous in all parts of the field, the greatest separation being noted down and to the right. In testing the double images, there was found to be marked irregularity of movement in both eyes, but more pronounced in the left, this being especially marked when the candle was carried to the extreme right in the horizontal plane. There was diplopia in in several positions, which was not noticed at first, but which became evident on continuing to fix the candle during test.

Course.—Strychnin was prescribed and a greater amount of rest was insisted upon. At the end of a month, the patient returned stating that he had been less nervous and the drooping of the lids less pronounced. The diplopia had disappeared Examination revealed, however, that the ptosis was still present, especially in the right lid. This was also the case three months later, but at the end of a year (May 3, 1905) the ptosis had entirely disappeared. When seen last, Nov. 2, 1906, there was no ptosis, but the patient averred that there was some tendency of the lids to droop in the evening. His health was good and he was working normally.

A note, addressed to the patient a few months ago with a view to obtaining information regarding his ocular and general condition since the last observation, brought a reply from his attorneys that the patient had died in December, 1919, of heart disease. Further inquiry from the physician who attended him in his last illness, Dr. Arthur Melville Shrady, of New York, elicited this report:

"Mr. H. showed no symptoms of myasthenia gravis, as far as I know. He wore glasses, but I do not know anything else about his eye history. Regarding his last illness, he certainly had arterial disease, especially of the coronary arteries, which caused his sudden death when leaving for Atlantic City. He had had an acute illness just prior to this which resembled pneumonia, but was more a congestion of the lungs with a peculiar dyspnea but accompanied by fever and blood-stained expectoration. Still I believe his heart was at the bottom of it and back of that the arteries. There were no murmurs."

Case 3.—*History.*—I was consulted on Nov. 8, 1904, by P. T. M., aged 12 years, who had been told by a school teacher, four years previously that his eyes needed attentton. He had always been a poor reader, the letters becoming mixed. His health was reported by his family physician, Dr. Hollopeter, of Philadelphia, as having been good; indeed, he seemed physically above the average, though the trouble with his eyes had interferred with his progress in school, and their expression of sleepiness, about to be described, gave the impression of sleepiness and mental dullness. No history of diplopia could be elicited.

Examination.—There was moderate ptosis in each eye, the lids drooping almost to the pupillary centers of the cornea. The skin of the forehead was thrown into numerous folds, due to the contractions of the frontalis muscle, in the effort to raise the lids. The right eyebrow was the higher, the ptosis in the right eye being the more marked. At 5 meters, right hyperphoria equalled 1 degree, esophoria 3 degrees; at the reading distance, there was no hyperphoria, and exophoria, 3 degrees. The double images were not tested. Under atropin the results were:

O.D. + S. 1. D. = 5/5.
O.S. + S. 1. D. ⌒ + C. 0.25 D. ax. 170° = 5/5.

There were no changes in the eye-grounds and the ocular movements were good in all directions. Glasses were ordered for constant use.

Course.—The patient was not seem for an interval of three years, when he returned complaining of the same symptoms: drooping of the lids, blurring in reading and headache. The patient said that the lids quivered at times, and his mother thought that he scowled more and more. She stated also that although the glasses originally prescribed had caused the symptoms to disappear for a time after they were first ordered, there had been several recurrences during the three year interval. Examination showed the same degree of ptosis as at the first visit, with overaction of the frontalis muscle. At 5 meters, there was exophoria of 1 degree; no hyperphoria; at the near point, exophoria 5 degrees. There was adduction of 30 degrees; abduction of 8 degrees. The boy appeared in apparent good health and Dr. Hollopeter could find no myasthenic symptoms elsewhere. In 1909, when he returned for a change of glasses, the condition of the lids and forehead was found to be much improved, and in 1911 all the lid symptoms had disappeared. In 1913, he was again seen complaining of squinting after near use, when the following change in his refraction was noted. Under homatropin:

O.D. + S. 0.25 D. ⌒ + C. 1. D. ax. 30° = 5/5.
O.S. + S. 0.50 D. ⌒ + C. 0.60 D. ax. 130° = 5/5.

The ptosis and contraction of the frontalis were not present. The patient has reported at intervals of every two or three years and has never shown a return of the eye symptoms and his health has been generally good. He is at the head of a prosperous business concern.

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COMMENT

Both of these patients presented initially the rather characteristic *facies* of moderate ptosis, most pronounced in one eye, with strong contraction of the frontalis in the effort to overcome the levator insufficiency. In both, the extra-ocular muscles were affected, paretic in Case 2, asthenic only in Case 3. After several years of persistence, with remissions, the disease disappeared in both. In Case 2, death occurred thirteen years later from disease of the coronary arteries, after a period of fourteen years entirely free from myasthenic symptoms. The third patient (Case 3) is still living and in excellent health after a period of eleven years without having had other attacks of the disease.

In the severer form of the disease, not infrequently paresis of the orbicularis and occipitofrontalis muscles follow that of the levator, so that the eye cannot be kept closed against pressure, nor can the brows be raised to compensate for the drooping of the lids, and the head is tilted back in order to see clearly. Later on, weakness of the muscles of the neck may cause the head to fall forward. If the levator labii superioris is involved, the power of smiling is lost, owing to the failure of the muscles at the corners of the mouth to act properly, and the so-called "nasal smile" of Gowers

is evoked. Paresis or even palsy of the muscles of mastication is a fairly constant symptom in the severe type, with difficulty in keeping the mouth closed. Speech is affected and the handwriting becomes more or less characteristic, the letters being at first well-formed and easily made, but gradually becoming worse in shape and more difficult to produce, till they are finally indecipherable, full power returning after rest and relapsing after further trial. The gait exhibits the same characteristic of excellence and falling off from the normal after exercise. The sphincters of the bladder and rectum do not become involved nor is there muscle atrophy.

The course and termination of myasthenia gravis is variable. As we have seen, the milder type tends to a complete cure, after many remissions in some months or years. Perhaps half of the patients with the severe type die in the same period. McCarthy records one case which terminated fatally after fourteen days of illness. Involvement of the muscles or respiration and deglutition are as a rule responsible for the fatal termination.

Females are slightly more liable to the disease than males, and the age at which they are affectetd is below that of men; thus, of 180 cases tabulated by him, McCarthy found males more frequently affected during the fifth decade of life, women during the third. Occupation and living conditions appear to exert no influence upon the incidence of the disease, nor does infectious or hereditary nerve disease. McCarthy was of the opinion, however, that pregnancy has a deleterious influence upon its course; others have found a marked improvement during labor, though they assigned to lactation an extremely bad influence.

Overwork and emotional excitement are initial factors in most cases, cooperating with an as yet unknown infection of some kind. As has been stated heretofore, there is evidence of participation of the endocrinous glandular apparatus, particularly the thymus, enlargement of this gland being found in so many cases of myasthenia gravis that its significance cannot be ignored. Note must be made that the disease may occur as a complication of exophthalmic goiter and goiter, also in patients with myxedema. The most constant postmortem finding was the discovery of lymphocytes, or lymphorrhages as their finder Buzzard designated them, clustered among the muscle fibers. These cells did not invade the muscle cells and only rarely caused degenerative changes in the muscles. There are those, however, who believe that myasthenia gravis should still be included under nervous diseases, and Krähenbühl, writing in 1916, insists that the affection is closely associated with true bulbar paralysis, which must be regarded as a part of progressive muscle atrophy. He suggests that it is not at all improbable that myasthenia gravis is the first stage in a combination of bulbar paralysis and progressive muscle atrophy and that the question is still unsolved as to whether the cause is of a myogenic or neurogenic nature.

While the ophthalmologist should have a clearly defined knowledge of myasthenia gravis and should have its symptomatology well in mind when confronted by the diagnosis of all cases of ptosis and extra-ocular muscle insufficiency and palsies, it is scarcely to be expected that he should be able to differentiate it with certainty from other varieties of muscular affections supplied by the bulb or from ophthalmoplegias due to various types of encephalitis, etc.—that is the province of the neurologist. It will be a help, however, to remember that in poliencephalitis, ophthalmoplegia interna is not uncommon, while it is rare, if not unknown, in myasthenia gravis. Neurologists are greatly aided in their diagnosis by the so-called myasthenic reaction, which was originally discovered by Jolly and defined by E. W. Taylor, as consisting in a rapid diminution in contractability of the muscles when stimulated by a tetanizing faradic current. It is, however, recognized that the myasthenic reaction can be demonstrated in other conditions, i. e., muscular hypertrophy, chronic poliomyelitis, Landry's paralysis, etc., though Strümpel has pointed out that in myasthenia gravis the reaction produced is more abruptly marked and that it may be obtained in groups of muscles which are at the time not obviously paretic. Neurologists have found that reaction degeneration does not occur, and muscle atrophy forms no part of the clinical picture of myasthenia gravis.

By reason of the weakness and nervousness which the prolonged illness of myasthenia gravis sometimes excites, and from the variability of its course, not a few cases of myasthenia gravis have been mistaken for hysteria. In myasthenia gravis, however, changes in the field of vision characteristic of hysteria are wanting, and the drooping of the lid is due to a weakness of the levator and not, as in hysteria, to spasm of the orbicularis. It occurs to me, however, that perhaps some of the intractable cases of asthenopia which I have treated in the past and which were regarded as neurasthenia may have been really instances of true asthenia of the eye muscles, without a ptosis to point assuredly to the true cause. It is possible, too, that slight degrees of ptosis may have been overlooked in some of these cases.

Recurring paralyses of eye muscles are frequently seen in tabes; but the differentiation from myasthenia gravis can usually be easily made in this class of cases by the associated characteristic pupillary changes of tabes, as well as by the motor and sensory phenomena observed elsewhere. The diagnosis will be made from recurrent oculomotor palsy (or, as it should be termed, recurrent extra-ocular muscle palsy, for the third nerve is not alone affected in this class of cases, associated with migraine and known also as migraine ophthalmoplegic), by the associated head pain and spectral phenomena observed in the field of vision by those suffering from this disorder.

Finally, myasthenia gravis must be differentiated from the ptosis myopthica which is defined by Fuchs as a form of ptosis which develops without known cause in women (very rarely in men) of middle age. It is always bilateral, and sets in so gradually that not till after a series of years is it pronounced enough to cause any considerable interference with vision. In these cases, it is not a paralysis of the nerve, but a primary atrophy of the muscle itself that is present.

All writers insist that the one essential in controlling this disease, which is so evidently aggravated by exertion, is rest, rest absolute and prolonged. Gentle massage may be essayed; severe massage is harmful. Strychnin seems of benefit. Alcohol is to be avoided. Jelliffe and White think psychotherapy should be essayed, and suggest a study of the endocrinous glands with an attempt to restore a balance in function if this is found to be absent. Pemberton having studied a case of myasthenia gravis from a metabolic standpoint and deducing from his studies that the disease is one of disturbed internal muscular metabolism per se, and

having found a loss of calcium by the tissues, suggests that calcium lactate should be administered over long periods.

The occurrence of very pronounced vascular changes in the retina in Case 1 and the death of the patient in Case 2 from disease of the coronary arteries, even though this occurred years after the symptoms of myasthenia gravis had manifested themselves, suggests that arteriosclerosis may play a more important part in myasthenia gravis than is usually suspected, and indicate that careful attention should be paid to this factor in all cases.

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ABSTRACT OF DISCUSSION

Dr. E. W. Taylor, Boston: The interest which we feel in the subject of myasthenia gravis lies in the fact of the difficulty of its classification. As Dr. Posey has implied, it is very difficult to put this particular form of nervous or ocular tire into any one fixed category. It certainly is not an ophthalmologic disease, a disease symptomatologically confined by any manner of means to the optic apparatus. It seems exceedingly doubtful whether it is a neurologic disease per se. Lesions of the nervous system are so insignificant as to be negligible. The feeling is growing that in some mysterious way it is connected with the muscular system, and possibly is to be associated with various forms of myopathies. My feeling is that probably it does not, like many other conditions in the nervous system, present in any sense a clinical entity, but is simply one of the forms of muscular exhaustion or of a certain condition which we may consider as toxic, for want of a better term. It runs the gamut all the way from slight fatigue to disturbance leading to death. Dr. Posey referred to the fact that in the last thirty years only 300 cases had been described in the literature. We may see hundreds of these cases which we overlook. We see cases of slight ptosis, with slight weakness of certain ocular muscles. The patient quickly recovers and we make no diagnosis, but wait for further signs and symptoms to develop, in the meantime, perhaps, making no careful study of the rest of the muscular system. The obvious cases are perfectly evident, but the slight cases, the cases of weakness which are so familiar to all of us, are very largely overlooked. Differential diagnosis in these cases is important. In the first case reported by Dr. Posey the patient suddenly noticed a ptosis. That presumably was a case of myasthenia gravis. It might, however, have been an encephalitis. Later it became evident that it was a true myasthenia gravis case. Naturally always, with ptosis, and with paralysis of the external muscles, one thinks immediately of syphilis, differential diagnosis being easily enough made by the determination of the Wassermann reaction and the condition of the cerebrospinal fluid. We have recently observed a case of myasthenia gravis apparently cured by roentgen-ray treatment of the thymus. The diagnostic point of importance is the presence of the so-called myasthenic reaction; added to this is lack of muscular atrophy, and a lack of neuropathies or true nerve disturbances. I believe there can be little question that we are dealing with a constitutional disorder in which it is possible that it may finally be found that the endocrine glands play a part.

The Passing of the General Practitioner.—The unfortunate individual who by reason of the obscurity of his symptoms is sent from one specialist to another often looks in vain for the only one who can interpret, weigh the value of, and fit in place the seemingly unrelated parts of the puzzle, the well-equipped, broad-visioned, experienced general practitioner; the humanizer, as someone has fittingly expressed it, of medical practice. With his disappearance, except in some of our rural communities, disappears also that most cherished, often sacred relationship between the doctor and patient, the personal side of practice.—M. Nicoll, Jr., *Health News* **15**:305 (Dec.) 1920.

CULTURES, SMEARS AND GUINEA-PIG INOCULATIONS IN DIAGNOSIS OF RENAL TUBERCULOSIS

THEIR VALUE AND RELIABILITY *

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In the study of any disease, it is of considerable value to gather together occasionally all the observations and data one has obtained, subject them to careful scrutiny, and endeavor, if possible, to evaluate the different methods employed as diagnostic procedures. We have attempted to do this in reviewing a series of 126 cases of tuberculosis of the kidney which have been observed and carefully studied during the past eight years. The clinical and cystoscopic manifestations of this disease have been so ably presented and discussed that they will be omitted, special stress being laid on the urinary findings, with a discussion of the comparative value and reliability of cultures, smears and guinea-pig inoculations.

At first sight, the problem before us appears to be a simple one. This is not so, however, for occasionally the diagnosis of renal tuberculosis is a most complicated one, requiring a careful analysis of all the facts before a definite conclusion can be reached.

It is not generally recognized that the finding of tubercle bacilli and pus in the urine does not necessarily establish the diagnosis of renal tuberculosis. Having demonstrated the organism, the next step is to determine its source. This is not always so evident, for one must consider the possibility of contamination by a ureteral reflux from a urinary or genital tuberculosis, by a tuberculosis involving the lower end of the supposedly healthy ureter or the female pelvic organs. Occasionally, an excretory tuberculosis may account for the presence of tubercle bacilli in the catheterized ureter specimens.

The following topics will be discussed in their proper sequence: (*a*) gross and microscopic findings of the urine in renal tuberculosis; (*b*) bacteriology of the urine in renal tuberculosis; (*c*) tubercle bacilluria; (*d*) comparative value of the smear and inoculation methods; (*e*) excretory tuberculosis; (*f*) rôle of genital tuberculosis, as a possible source of error, in the diagnosis of renal tuberculosis, and (*g*) diagnosis of bilateral renal involvement and its influence on operation.

CHANGES IN THE URINE IN RENAL TUBERCULOSIS

In general, it may be stated that the examination of the urine is probably the most important step in the diagnosis of renal tuberculosis. Pus in amounts sufficient to produce cloudy urine is an early symptom, and an almost constant accompaniment of this condition. The urine may vary from a slight haziness to marked turbidity, depending in part on the local pathologic changes and also on the presence or absence of secondary infection. A macroscopically clear urine, however, does not contraindicate tuberculosis, for the

* From the Surgical Service of Dr. Beer, Mount Sinai Hospital.
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organisms have been found in large numbers in a sparkling clear urine. Such is more likely to be the case in genital tuberculosis. A well advanced process may exist, and the urine present few macroscopic or microscopic changes. This occurs when the ureter is occluded (closed pyonephrosis) or when the focus in the kidney is shut off from the pelvis. Rapid changes in the degree of turbidity of the urine are not uncommon, owing to the rupture or closing off of pus cavities in the kidney. Hematuria is mainly microscopic, although profuse hemorrhages happen occasionally. Terminal hematuria is not uncommon. In a few instances in this series, the bleeding was so profuse as to simulate that occurring in renal tumor. Albuminuria is practically always present, even though the amount of pus is negligible. Wildbolz [1] claims that so constant a find is albumin that its absence almost negates the presence of a tuberculosis. The acid reaction of the urine is especially characteristic of this condition.

BACTERIOLOGY OF THE URINE IN RENAL TUBERCULOSIS

The general impression still prevails that the urine in renal tuberculosis is always sterile, and that if secondary organisms are found, tuberculosis may be excluded. In fact, a sterile pyuria in an acid urine is almost synonymous with tuberculosis. Albarran [2] was among the first to refute this impression, and called attention to the fact that tuberculous urine was often secondarily infected. Since then, numerous contributions have appeared dealing with this subject, reporting secondary infections in from 10 to 30 per cent. of the cases. Spooner,[3] in 1918, found that in catheterized kidney specimens growths were frequently present. The most recent and painstaking investigation is that lately reported by Barney and Welles.[4] These authors studied sixty-three proved cases of renal tuberculosis. All the specimens were obtained by catheterization of the bladder and kidneys. Instead of cultures, which they claim are readily contaminated and therefore unreliable, dependence was placed almost entirely on smears of the centrifugalized sediment of fresh urine. Their conclusions may be summed up as follows:

> Cultures and smears have shown positive results from the bladder urine in 55.3 per cent.; of the kidney urine in 28.6 per cent. Smears of the bladder urine showed secondary infection in twenty-one cases, whereas in smears from the kidney urines, secondary organisms were found in only five instances; three times from the healthy side, and twice from the diseased side. Combining the results of cultures and smears from the separate kidney urines, positive results were obtained on the healthy side eleven times, and on the tuberculous side in seven cases. . . . Our results show conclusively that while a negative smear or culture from the bladder in a case of cystitis or pyuria points strongly to tuberculosis, a positive smear or culture from the bladder, or even from the kidney urine, does not exclude this disease.

The authors, in trying to account for the fact that the urine of the healthy kidneys showed a higher percentage of secondary infections than that obtained from the diseased organ, call attention to the theory of Albarran, who long ago pointed out that infection of one kidney exerts an inhibitory and depressive influence on its uninfected mate. That this explanation is by no means a satisfactory one is agreed on by the writers. A more natural assumption would be that the high percentage of secondary infections is probably due to one of many sources of contamination.

TUBERCLE BACILLURIA

As previously stated, a presumptive diagnosis of renal tuberculosis can usually be made on the history, physical examination and cystoscopy; the finding of tubercle bacilli in the urine is considered proof positive of its existence. This statement, while holding true for the majority of instances, has its exceptions.

METHODS OF DETERMINING THE PRESENCE OF TUBERCLE BACILLI IN THE URINE

Smears.—The demonstration of tubercle bacilli in the urine is generally regarded as a rather difficult task. Reports of numerous reliable observers, however, show that this is not so. The negative examination of a smear means nothing. Repeated smears must be examined before one can state with any degree of certainty that no bacilli are present. The absence of tubercle bacilli in a given specimen may depend on a number of factors. Leaving aside the personal equation of the examiner, which plays quite a rôle, the technic of collecting, and methods of staining, which lack of time and space do not allow us to discuss, it appears that the bacillus content of the urine varies considerably at different stages of the disease. The bacilli may appear in showers, coincident with the opening up of a tuberculous focus. At such a time, a tyro would have but little difficulty in demonstrating them. Large numbers of bacilli are more likely to be found in the earlier than in the later stages of the disease. In advanced cases, with a thick, purulent urine, it may be impossible to demonstrate them even in smears or cultures obtained from the extirpated organ. The presence of a secondary infection renders the finding of tubercle bacilli more difficult. Negative smears from a catheterized bladder specimen are not at all conclusive, for the diseased focus may not communicate with the pelvis, or the ureter may be closed off by stricture formation, preventing the infected urine from reaching the bladder. The value of repeated examinations is shown by the following observation: In a series of fifty-two cases of renal tuberculosis, Hottinger [5] found the bacilli forty-two times in the first specimen examined; in the second series of smears, six additional positive results were obtained; in only four cases were they missed. The antiformin method is of value only when there is secondary infection, producing a thick, ropy alkaline urine; otherwise it possesses no advantage over the usual methods employed.

The percentage of positive results varies considerably, some authors finding the bacilli in but 20 per cent. of smears, while Wildbolz,[1] reports 90 per cent. in 155 nephrectomies; Rovsing,[6] Leedham-Green [7] and Casper,[8] from 80 to 90 per cent. positive findings. Kümmell [9] and Frisch [10] found the bacillus in practically all of their cases. In our series of 102 operative cases,

1. Wildbolz: Chirurgie der Nierentuberculose, 1913, p. 74.
2. Albarran, quoted by Raffin: J. d'urol. méd et chir. **1**: 777, 1912.
3. Spooner, H.: J. M. Res. **39**: 59 (Sept.) 1918.
4. Barney, J. D., and Welles, E. S.: The Bacteriology of the Urine in Renal Tuberculosis, J. A. M. A. **74**: 1499 (May 29) 1920.
5. Hottinger: Zentralbl. f. d. krankh. d. Harn u. Sex. Orig. **17**, 1906.
6. Rovsing: Arch. f. klin. Chir. **77**: 1, 1905.
7. Leedham-Green: Brit. M. J., October, 1908.
8. Casper: Deutsch. med. Wchnschr. **3**: 4, 1905.
9. Kümmell: Arch. f. klin. Chir., 1906, p. 81.
10. Frisch: Verhandl. d. deutsch. Gesellsch. f. Urol., III Kong., Vienna, 1911.

approximately 65 per cent. of the smears were positive, and these figures would no doubt be higher, had repeated search been made. Very often the diagnosis was based on the cystoscopic findings, and operation was undertaken before awaiting the results of further smear examinations. There are a few points of considerable importance in collecting the catheterized ureter specimens. To guard against contamination, it is advisable to irrigate the bladder thoroughly through the sheath of the instrument, before introducing the catheterizing system. Only the later specimens (third and fourth test tubes of urine) are collected for smears, guinea-pig inoculations and cultures.

The danger of confusing the smegma bacillus with the tubercle bacillus has repeatedly been mentioned. Indeed, a number of instances are quoted in which this error was made, and a few kidneys unnecessarily sacrificed. Elaborate and complicated stains have been devised as a differential aid, but if only catheterized specimens are utilized and note taken of the typical beading and grouping of the tubercle bacillus, no difficulty should be experienced. Smegma bacilli have occasionally been found in catheterized bladder urines, but not in urine obtained by ureteral catheterization.

Guinea-Pig Inoculations.—This method of demonstrating the tubercle bacillus has always been considered a more reliable and delicate test, yielding a higher percentage of positive findings than smears. First performed in 1882, as a diagnostic measure, the technic generally practiced has undergone but few modifications, although a number of new methods of inoculation have been suggested.

Methods of Guinea-Pig Inoculations: The great disadvantage of this test is that it is time consuming; from four to six weeks are required before a report may be obtained. In order to shorten the period considerably, and to render the procedure of more practical value a number of modifications have been suggested. Nattan-Larrier [11] found that injecting the urinary sediment into the breasts of lactating pigs gave positive results in ten days. The difficulty, however, in obtaining animals in such a condition renders the method rather unpractical for ordinary use. Injections directly into the blood stream have not given results better than those obtained by the usual method of inoculation.

Oppenheimer [12] injected directly into the liver and spleen, and reported positive results in a large number of cases, in from five to sixteen days. In three weeks' time, the lesions were so marked as to render needless microscopic examination. Bloch,[13] by first traumatizing the inguinal glands before injecting subcutaneously into the thigh, claims to have demonstrated tuberculosis in from nine to eleven days. Both these methods, it seems, have their disadvantages and have been disproved by other observers.

Ebright [14] first sought to diminish the animal's resistance by a preliminary large dose of tuberculin. Asch [15] injected a filtrate of a concentrated tubercle bacillus bouillon culture intraperitoneally, at the same time the urinary sediment was injected in the abdominal wall, and claimed positive results in from four to ten days.

11. Nattan-Larrier: Monographic chirurgie, Masson, October, 1905.
12. Oppenheimer: Ztschr. f. Urol. **1**: 122-125, 1912.
13. Bloch: Berl. klin. Wchnschr., 1917, p. 17.
14. Ebright: Zentralbl. f. allg. Path. u. path. Anat. **21**, 1910.
15. Asch: Verhandl. Deutsch. Gesellsch. f. Urol., III Kongress, 1911.

In order to curtail the time necessary for the guinea-pig test, by increasing the susceptibility of the animals, the roentgen ray was first advocated in 1899. The results reported were contradictory and, in the main, unsatisfactory. In recent years, Morton [16] again called attention to this method, and found that one massive roentgen-ray exposure of the pig diminished its resistance to such an extent that positive lesions could be demonstrated within from eight to ten days after inoculation. Elkford [17] advised frequently repeated doses of the roentgen ray, and reported positive findings in two instances. On the other hand, Killert [18] and Corper [19] came to the conclusion that the roentgen-ray method failed to diminish appreciably the time required, and found it of no practical use in diagnosis.

The question arises as to the reliability of guinea-pig inoculations. What is the percentage of error, and what are its disadvantages? Contrary to the claims of some authors, the test is not infallible. Whereas a negative pig test has more value than a negative smear, it is by no means conclusive. Unquestionably, a positive reaction is at times missed, even in frank cases, so that one negative inoculation should not rule out tuberculosis. Occasionally the test is positive when the lesion is in another part of the body, and the organisms are excreted from a nontuberculous kidney. At times the bacilli will be demonstrated in smears, when the pig test is negative. Wildbolz [1] reports two cases in which operation demonstrated a well marked open tuberculosis, with negative pig findings. Raffin,[20] Kapsammer,[21] Watson, Kretschmer [22] and others have reported similar cases. Tenney,[23] in 1911, reported three nephrectomies, in which the kidneys removed were tuberculous, but guinea-pig inoculations had been negative. This led Barney and Young [24] to investigate the records at the Massachusetts General Hospital, and their results in 197 proved cases of renal tuberculosis showed but a fraction of 1 per cent. of error. Only two cases gave negative results, and in one of these the ureter was found completely obliterated. Excluding this case, the percentage of error was 0.5 per cent. They conclude that "the guinea-pig test for tuberculosis, when carefully done, is by far the most delicate and invariably accurate diagnostic weapon at our disposal, and a negative test is of indisputable value." The authors claim that infection of the urine, by the usual contaminating organisms (colon group or staphylococci), seldom results in injury to the guinea-pig, and death from sepsis has been a rarity. The animals were all injected subcutaneously in the abdominal wall, and killed at the end of five weeks. Occasionally the pig may die from an accidental tuberculosis. Barney reports one such case, and advises careful necropsy examination to avoid misinterpreting findings.

That this method (guinea-pig inoculation), while a very valuable aid, is not free from error is shown by the following results: Of the sixty patients from whom urine was obtained for inoculation, forty-two were subjected to nephrectomy, and the diagnosis veri-

16. Morton, J. J.: J. Exper. Med. **24**: 419 (Oct.) 1916.
17. Elkford: J. Lab. & Clin. Med. **3**: 175, 1917.
18. Killert: J. M. Res. **39**: 93, 1918
19. Corper: Amer. Rev. Tuberc. **2**: 587 (Dec.) 1918.
20. Raffin Tenth Session, Association française d'urol., 1906.
21. Kapsammer: Nieren Chirurgie, Vienna, 1907.
22. Kretschmer: Boston M. & S. J. **164**, 1911.
23. Tenney: Boston M. & S. J. **164**, 1911.
24. Barney and Young: Boston M. & S. J. **164**, 1911.

fied, so that only these cases will be taken into consideration. There were eleven negative results (36 per cent.), and twenty positive results (64 per cent.). Eleven pigs died at periods of time varying from one to five weeks, after inoculation, four from sepsis; in eight no definite cause could be ascertained. In the positive cases, tuberculosis was demonstrated as early as the twenty-second day. In estimating the number of negative results, only those animals were included that were killed at the expiration of forty-two days, the time allotted by the laboratory. There were no cases in this series in which the guinea-pig test proved negative, after obtaining positive smears. All of the pigs were injected both intraperitoneally and in the groin. The specimens were obtained directly from the kidney or bladder by catheterization.

We realize that this percentage of negative results is rather high. In endeavoring to determine the causes of failure we learned that at least twenty intern pathologists were respectively responsible for the inoculations. Under the present system of hospital organization with rotating services, new interns are periodically transferred to the laboratory. Of course the inexperienced man will not obtain results comparable to those of his better trained colleague. Although not intricate, the method requires a measurable degree of accuracy to insure reliable results. The laboratory, recognizing this condition, purposes conducting these examinations under the immediate direction and control of one responsible head.

The presence of tubercle bacilli in the catheterized bladder or ureteral specimen of urine does not necessarily imply a renal tuberculosis. The difficulties which may be encountered in determining the renal involvement of such cases have been well described by Beer,[25] in a recent article on tubercle bacilluria. The author points out that tubercle bacilli may be present in catheterized ureteral specimens under three conditions: (1) when there is a tuberculous focus in some part of the body and the bacilli are excreted from a nontuberculous kidney; (2) when there is a tuberculous focus in the genital or urinary tract by contamination or by ureteral reflux, and (3) when the tuberculosis is in the upper urinary tract or kidney.

EXCRETORY TUBERCLE BACILLURIA

Whereas opinions on this subject are rather contradictory, the weight of evidence appears to favor the fact that in tuberculosis of the lungs and other organs a normal kidney may filter through tubercle bacilli without causing a local tuberculous lesion in the kidney itself. It seems that kidneys the seat of disease other than tuberculosis (stone tumor, nephritis) more readily allow the passage of tubercle bacilli than normal organs.

Repeated instances are cited in the literature. Loumeau [26] reports a case in which a patient with a renal tumor excreted tubercle bacilli in the urine. After nephrectomy the bacilli disappeared from the urine, and the extirpated organ showed no evidences of tuberculosis. Wildbolz reports a case of stone kidney in which bacilli were found in the urine by guinea-pig inoculation, none by smear. After removal of the stone (kidney and ureter showed no evidences of tuberculosis) the urine became clear, and guinea-pig inoculations on two different occasions, one-half and one and one-half years after, were negative. Von Rijssel [27] examined four kidneys extirpated because of a diagnosis of tuberculosis, based on guinea-pig inoculations. Microscopic examination failed to detect tuberculosis; neoplasms were present in two cases. As a rule, in excretory bacilluria, the bacilli are present in such small numbers that they can be demonstrated only by inoculation methods, and not in smears. Oppel,[28] however, reports two instances in which the bacilli were demonstrated in smears, and still no evidences of urinary tuberculosis were found. Tubercle bacilli have been found in the urine of patients in the early stages of pulmonary tuberculosis, in surgical tuberculosis and occasionally where the primary source has not been determined. The possibility of a genital tuberculosis acting as the focus of the infection has been mentioned by Beer.[25] The presence of tubercle bacilli alone in smears or in catheterized ureter specimens does not justify a diagnosis of renal tuberculosis; pus or macroscopic blood must be found associated. A number of reliable observers are opposed to this view, and claim that tubercle bacilli in the catheterized kidney specimens (even though they are free of albumin and pus and blood) invariably mean an early renal tuberculosis. The importance of this statement will be readily realized in discussing the question of operation in so-called bilateral renal tuberculosis.

CONTAMINATION FROM TUBERCULOSIS OF GENITO-URINARY TRACT AND OTHER SOURCES

The incidence of tubercle bacilli in the urine, in genital tuberculosis without renal involvement, is difficult to estimate. Cunningham [29] found bacilli in smears in 15 per cent. of cases, from the expressed prostatic secretion. In ten cases of epididymitis in the service with which we are connected, tubercle bacilli were found twice, without evidences of renal involvement. The importance of this finding lies in the fact that specimens of the urine obtained by ureter catheterization may be contaminated by tubercle bacilli which have their origin in the genital tract. A reflux of the bladder fluid up the ureters is not an unusual occurrence, as has been repeatedly proved by roentgenograms and other methods. If tubercle bacilli are present in the bladder, they may be carried up to the kidney, and obtained by ureteral catheterization. Failure to recognize this source of contamination may result in a diagnosis of renal infection. Despite careful irrigations, there is also the possibility of carrying bacilli from the posterior urethra and bladder up into the kidney by means of the ureteral catheters. Another source of contamination may be a secondary tuberculous ureteritis (involving the lower end of the ureters) from an extension of a tuberculous vesiculitis. The possibility of renal infection from tuberculosis of the female pelvic organs must also be considered.

BILATERAL RENAL TUBERCULOSIS

From time to time, the question of operation in bilateral renal tuberculosis has been discussed. A number of surgeons have advocated extirpation of the more badly diseased kidney, claiming excellent results in selected cases. Others have refused to operate, if

25. Beer, E.: Am. J. M. Sc. 154: 251 (Aug.) 1917.
26. Loumeau: Folia urolog. 4.
27. Von Rijssel, E. C.: Nederlandsch. Tijdschr. f. Geneesk. 2: 590, 1920.
28. Oppel: Folia urolog. 1: 4, 1908.
29. Cunningham: Boston M. & S. J., 1911, p. 872.

tubercle bacilli are present in the urine from the opposite kidney. This naturally brings up the question as to the criteria on which to base the diagnosis of bilateral renal involvement. In the majority of instances, a diseased kidney makes itself evident by changes around the ureteral orifice; a perfectly normal bladder and meatus, however, do not contraindicate a tuberculosis. Functional tests are often of little value, especially in early cases; the problem is solved when pus and tubercle bacilli are found in catheterized ureter specimens which have been carefully collected. The presence of pus alone in the second kidney does not necessarily signify a tuberculosis; it may be due to a nonspecific pyelitis or to other conditions.

Casper,[30] before subjecting a case of unilateral tuberculosis to operation, advises awaiting the result of the guinea-pig inoculation of the opposite kidney. He counsels against operation in the face of a positive pig test, even though the catheterized specimen is clear, free of pus and albumin, and the function of the kidney good. Israel[31] supports this view, and claims that in the cases developing a tuberculosis of the second kidney soon after nephrectomy the lesions have been so slight at the time of operation as to avoid detection by any means except inoculation. How careful one must be in accepting such conclusions may be gathered from the following observations: In twenty-eight cases of unilateral renal tuberculosis in this series, the urine from the opposite, supposedly healthy kidney was inoculated into pigs. The urinary and cystoscopic findings and smears gave no evidences of disease of these kidneys. Still, in five cases, (18 per cent.) the urine obtained from the opposite kidney by ureteral catheterization gave a positive guinea-pig test. Four of these patients were males, one a female. One patient developed a tuberculous epididymitis five months after nephrectomy. The second patient had a coincident prostatic tuberculosis. The bladder urine, which was clear and brilliant, repeatedly was found swarming with tubercle bacilli, the origin of which was unquestionably prostatic. The urine from both kidneys inoculated into guinea-pig gave positive results on a number of occasions. The third patient had a tuberculous epididymitis and prostatitis. No evidences of genital infection was present in the other two cases. Four of these patients were followed up for some time, two of them for a period of three years, and one for seven years, without developing a tuberculosis of the second kidney. Undoubtedly, in these cases the bacilli were either carried to the kidney from the bladder urine, through an infected catheter, or the contamination was due to a reflux.

TABLE 1.—RESULTS OF THE VARIOUS EXAMINATIONS

	Number	Per Cent.
1. Total number of cases of renal tuberculosis	126	..
2. Cases in which operation was performed	102	83
3. Cases in which operation was not performed	24	17

If, then, one accepts as sufficient evidence of renal tuberculosis the presence of tubercle bacilli in a urine free of pus and albumin, it will readily be seen that, according to the dictum of Casper, Israel and others, patients will be refused nephrectomy who otherwise might stand an excellent chance for a cure. On the other hand, numerous cures following nephrectomy for bilateral renal tuberculosis will be reported if these criteria are accepted as evidence of such involvement.

Animal inoculation should be resorted to when the smear proves negative, and when there is a question as to involvement of the opposite kidney. Occasionally the pig will pick up an unsuspected case of renal tuberculosis which could not have been detected by other means.

TABLE 2.—RESULTS IN OPERATIVE CASES

	Number	Per Cent.
1. Total number of cases in which guinea-pigs were inoculated	42	..
2. Tests positive	24	64
3. Tests negative	11	36
4. Total number of cases in which smears were examined	87	..
5. Smears positive	57	65
6. Smears negative	30	35
7. Cases in which neither smears nor inoculations were taken, diagnosis being made on cystoscopic findings	8	..
8. Cases diagnosed by pathologist, not suspected before operation	2	..

In three cases, guinea-pig inoculation disclosed tuberculosis, when no suspicion of this disease was previously entertained. In but a few instances did we await the full time required for a report of the inoculation, before proceeding with the operation. In these cases, the clinical and cystoscopic data were so insignificant as to render the diagnosis very uncertain.

In summing up the relative advantages and disadvantages of the smear versus the guinea-pig, it may be stated that the smear is a simple and rapid procedure, gives positive results in at least 65 per cent. of the cases, and for these reasons proved to be, in our experience, of greater value than inoculations. The pig test is so time consuming as to render it impracticable as a routine procedure. The diagnosis in this series was in most instances made on a careful study of clinical symptoms, cystoscopy and smear examinations.

Taking into consideration only those cases in which operation was performed, the results may be tabulated as in Table 2.

ABSTRACT OF DISCUSSION

DR. JAMES D. BARNEY, Boston: This paper brings up a very important method diagnosis in renal tuberculosis. I agree that the smear is of great importance and of great value if the technic is carried out carefully. For some years I have been making these smears, following the method described by Dr. Crabtree, with careful staining of the sediment. Although I have no accurate figures on which to base my remarks, we have had at least 75 per cent. positive results if the tubercle bacillus was there. The difficulties Dr. Hyman has had have also been ours, in that there have been many changes in personnel and so many things have been reported negative that would otherwise be positive. I feel that with care in the technic in the hands of a reliable man it is a very accurate test. The guinea-pig inoculation I have thought to be a very delicate test, but it has been at great disadvantage because of the time consumed. We have recently had a few cases in which the guinea-pig test was not reliable, although every step of the technic was followed carefully. There are numerous causes for failure of the guinea-pig test: The urine is not properly sedimented, the calix or pelvis is shut off, or the ureter is stenosed, thus preventing the urine from coming through. Then some guinea-pigs are of higher susceptibility than others. In other cases, owing to other infections of the urine, the guinea-pig is overwhelmed and dies before a diagnosis can be made.

30. Casper: Verhandl. deutsch. Gesellsch. f. Urol., Vienna, 1911, p. 72.
31. Israel: Verhandl. deutsch. Gesellsch. f. Urol., Vienna, 1911, p. 72.

As regards the diagnosis of bilateral lesions, that is sometimes a very difficult matter, as sometimes tubercle bacilli are found in the urine of a healthy kidney.

DR. EDWARD L. KEYES, JR., New York: Trauma of the kidney will sometimes bring down tubercle bacilli in the urine. This was brought to my attention some years ago when, failing to obtain tubercle bacilli in the urine in a certain case, we made a pyelogram and subsequent to that found many tubercle bacilli in the urine. In another case in which there were no bacilli prior to operation we did a nephrectomy and subsequently there were many tubercle bacilli in the urine, although the patient was much relieved by operation. I think it is worth while if you have not found tubercle bacilli before pyelography to take repeated specimens afterward and smear them, for you are much more likely in some cases to get tubercle bacilli after this procedure than before.

DR. ABRAHAM HYMAN, New York: One of the main points I wished to bring out was the difficulty of determining whether the second kidney is involved or not. I mentioned a few possibilities of error. We may have tubercle bacilli in the bladder urine from various sources, and unless one is very careful with his technic there is a possibility of carrying the organisms to the kidney by means of the ureteral catheter. We know that occasionally the bladder fluid will pass up alongside the catheter to the kidney and return through the ureteral catheter; if the bladder urine contains tubercle bacilli we are liable to get a contamination in this way. Casper, before subjecting a patient to nephrectomy, awaits the result of the guinea-pig inoculation of the opposite kidney. Should tubercle bacilli be demonstrated, even in the absence of pus or albumin, the case is considered one of bilateral renal tuberculosis and operation advised against. In view of the discussion brought out in this paper, concerning the various sources of contamination, the fallacy of such a statement is evident.

THERAPEUTIC VALUE OF CHAULMOOGRA OIL AND ITS DERIVATIVES IN EXPERIMENTAL TUBERCULOSIS*

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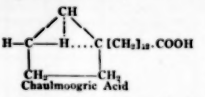
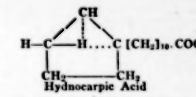
Numerous attempts have been made in the past to discover chemicals which will cause the death of the tubercle bacillus within the body of infected animals. Soon after the discovery of this bacillus, Robert Koch himself tried to find drugs which might be useful in combating this disease. It is not our purpose in this paper to review the large amount of work done along this line. Suffice it to say that all of these attempts have been complete failures, notwithstanding the positive claims which were made from time to time. As a matter of fact, the specific treatment of diseases of bacterial origin has so far not yielded results comparable to those obtained in the treatment of diseases due to protozoa. The chemotherapy of bacterial diseases is, however, not a hopeless problem, as shown by the promising results obtained by Morgenroth and his colleagues with ethylhydrocuprein in the treatment of pneumococcus infection in mice, and the recent reports on the favorable action of chaulmoogra oil in leprosy.

The success reported in leprosy led us to test out the therapeutic value of chaulmoogra oil and its principal components in experimental tuberculosis, for the following reasons: (1) The leprosy and tubercle bacillus belong to the group of acid-fast bacteria, and (2) the work of Walker and Sweeney [1] seems to indicate that chaulmoogric acid, the specific acid contained in chaulmoogra oil, exerts a powerful action on all acid-fast bacteria, but is inert toward nonacid-fast organisms. Indeed, these authors present figures which show that chaulmoogric acid is 100 times more bactericidal than phenol for acid-fast bacteria, including the tubercle bacillus.

The chemistry of chaulmoogra oil has been worked out pretty thoroughly by the splendid researches of Power and his collaborators,[2] the results of which were confirmed and somewhat extended by Dean and Wrenshall [3] in a recent paper. According to this work the oil contains a large amount of chaulmoogric acid and hydnocarpic acid, which appear to possess the following constitution:



Chaulmoogric Acid



Hydnocarpic Acid

Both acids are optically active and differ from the ordinary fatty acids in containing a five-atom carbon ring with an unstable hydrogen atom. The acids can be readily converted into the ethyl esters, which seem to possess certain therapeutic advantages over chaulmoogra oil.

The guinea-pig was selected as the experimental animal on account of its great susceptibility to infection with tuberculosis, and the regular course and invariably fatal outcome of the disease when a proper dose of tubercle bacilli is used.

TOXICITY

As a preliminary to the therapeutic experiments, the toxic action of the compounds was studied on normal guinea-pigs. Chaulmoogra oil dissolved in olive oil or given as such intramuscularly is intensely irritating, and leads to local swelling and necrosis of the tissues even in small doses (1 c.c.). On microscopic examination, the site of injection shows atrophy and fatty degeneration of the muscle fibers, this change occurring at times with doses as small as 10 mg. Subcutaneous administration of the oil gives rise to local hemorrhages, thickening and necrosis. The ethyl ester of chaulmoogric acid is somewhat less objectionable in this respect, but even this compound causes some local irritation and microscopic changes. Intraperitoneal injection of the ethyl ester seems to be tolerated in fairly large amounts. After repeated injections, the peritoneal cavity on necropsy is found to contain a large amount of precipitated material covering the spleen and liver which appears to be fibrin. Adhesions are nearly always present, especially in the tuberculous animals treated with this substance. The sodium salt of chaulmoogric acid in 2 per cent. aqueous solution can be injected intravenously at a slow rate without causing any evident symptoms. If the rate is too rapid, however, the animal dies of what appears to be embolism, as under these conditions the free acid seems to be precipitated in the blood stream. Furthermore, the solution of the sodium

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Walker, E. L., and Sweeney, M. A.: The Chemotherapeutics of the Chaulmoogric Acid Series and Other Fatty Acids in Leprosy and Tuberculosis, J. Infect. Dis. **28**: 238 (March) 1920.
2. Power, F. B., and Gornall, F. H.: J. Chem. Soc. **85**: 851, 1904. Power, F. B., and Barrowcliff, M.: Ibid. **91**: 557, 1907.
3. Dean, A. L., and Wrenshall, Richard: Fractionation of Chaulmoogra Oil, J. Am. Chem. Soc. **42**: 2626-2645, 1920.

salt is strongly alkaline, and has therefore a destructive effect on the vein used for the injection, so that each vein can be used only once. On account of this difficulty, the use of the sodium salt had to be abandoned. We conclude from our toxicity experiments that chaulmoogra oil and chaulmoogric acid and its derivatives are substances of relatively tow toxicity, but possessing irritating properties which make their therapeutic administration somewhat difficult, a fact which is also borne out by the clinical reports on their use in leprosy.

TREATMENT

Guinea-pigs weighing from 200 to 250 gm. were kept for a preliminary period of observation in well-constructed cages, and were fed on oats, cabbage and carrots. The growth curve of the animals was determined, and individuals showing no proper increase in weight were eliminated. We believe this to be an important measure which should be observed in all work of this type, as the reliability of the results is dependent on taking this precaution.

The material used for intraperitoneal inoculation consisted of a culture of a fairly virulent human strain of tubercle bacilli (H_{37}) which had been cultivated in this laboratory for several years on glycerin broth. In the three series of experiments here reported, fifteen, forty-nine and thirty controls, respectively, were inoculated with the same emulsion as the animals which were subjected to treatment. In the first series the dose was 0.001 mg., and for the second and third series 1 mg. of a culture five to six weeks old. The animals were weighed once a week. A careful necropsy was made in nearly all cases, and the findings were confirmed by histologic examinations of the lesions.

TABLE 1.—WEIGHT CHANGES AND AVERAGE LENGTH OF LIFE IN SERIES II

	Group 1 (Controls)	Group 2	Group 3
Average number of weeks of maintained weight	9.4	7.6	7.0
Average number of weeks of ascending part of growth curve	6.8	5.1	5.1
Average of weeks of descending part of growth curve	3.0	3.0	3.1
Average length of life in days	105.9	94.2	82.0

TABLE 2.—EXTENT AND CHARACTER OF LESIONS FOUND AT NECROPSY IN SERIES II

	Group 1 (Controls)	Group 2	Group 3
Percentage of animals showing:			
No lesions	..	..	2 (21st day)
Localized	4	..	6
Moderate generalization	35	41	37
Generalization with caseous necrosis	61	59	55

The chaulmoogra oil used was obtained from India and conformed with the requirements of the British Pharmacopeia. The chaulmoogric acid was prepared in chemically pure form. The ethyl ester was obtained from a mixture of chaulmoogric and hydnocarpic acids and was purified by vacuum distillation. Part of the ester was converted into a saturated compound by adding 5 gm. of the ester to 1.92 gm. of iodin dissolved in 5 gm. of absolute alcohol. This compound is referred to as the iodin saturated ethylchaulmoograte.

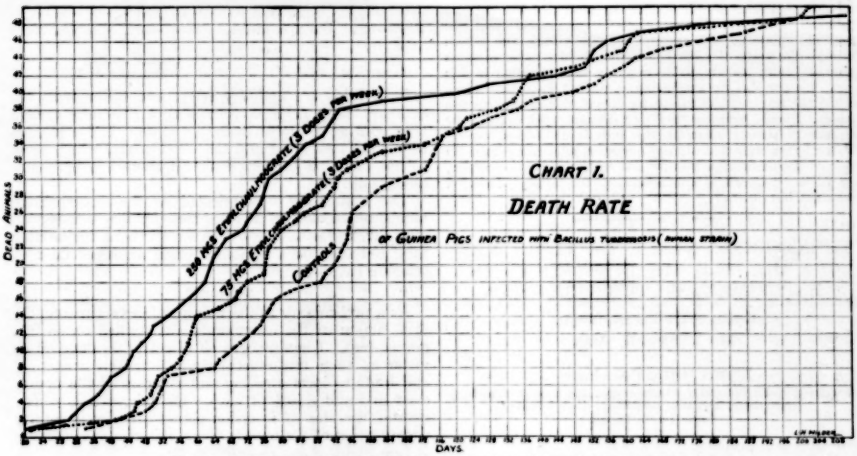


CHART I.
DEATH RATE
OF GUINEA PIGS INFECTED WITH BACILLUS TUBERCULOSIS (HUMAN STRAIN)
1.92 PER CENT ETHYLCHAULMOOGRATE (5 DROPS PER WEEK)
.75 PER CENT ETHYLCHAULMOOGRATE (5 DROPS PER WEEK)
CONTROLS
DEAD ANIMALS
DAYS.

Chart 1.—Death rate of guinea-pigs infected with Bacillus tuberculosis (human strain).

SERIES I.—Inoculated with 0.001 mg. of tubercle bacilli emulsion.

Group 1. Fifteen controls.

Group 2. Thirty-six animals. Each received 80 mg. per kilogram of sodium chaulmoograte (2 per cent. solution) intravenously about every ten days. Total dose of chaulmoogric acid: maximum, 240 mg. per kilogram; minimum, 100 mg. per kilogram.

Group 3. Thirty-four animals. Each received 80 mg. per kilogram of sodium chaulmoograte (2 per cent. solution) intravenously about every ten days, and 100 mg. per kilogram of calcium lactate (2 per cent. solution) intravenously as a separate injection every ten days. Total dose of chaulmoogric acid: maximum, 160 mg. per kilogram; minimum, 80 mg. per kilogram. Total dose of calcium lactate: maximum, 200 mg. per kilogram; minimum, 100 mg. per kilogram.

SERIES II (Chart 1).—Inoculated with 1 mg. of tubercle bacillus emulsion.

Group 1. Forty-nine controls.

Group 2. Fifty animals. Each received 75 mg. of ethylchaulmoograte in olive oil (25 per cent. solution) intraperitoneally three times a week.

Group 3. Fifty animals. Each received 250 mg. of ethylchaulmoograte in olive oil (50 per cent. solution) intraperitoneally three times a week. Total dose of last two groups: maximum, 15 c.c.; minimum, 4.5 c.c. of ester.

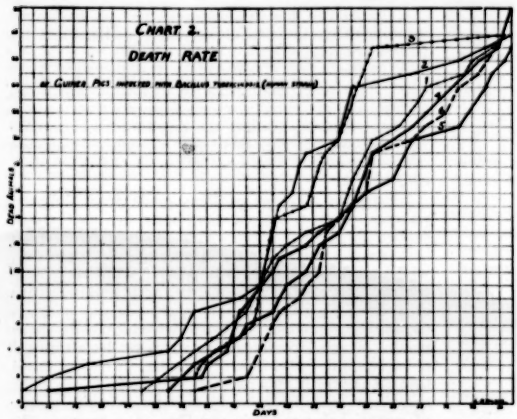


Chart 2.—Death rate of guinea-pigs infected with Bacillus tuberculosis (human strain).

SERIES III (Chart 2).—Inoculated with 1 mg. of tubercle bacillus emulsion.

Group 1. Thirty controls.

Group 2. Thirty animals. Each received 10 to 20 mg. chaulmoogra oil[4] intramuscularly once a week.

Group 3. Thirty animals. Each received 10 mg. of ethyl ester intramuscularly once a week.

Group 4. Thirty animals. Each received 10 mg. of iodin saturated ethylchaulmoograte intramuscularly once a week.

Group 5. Twenty-nine animals. Each received 100 mg. of undiluted ethyl ester plus 10 mg. of sodium iodid intramuscularly once a week.

TABLE 3.—EXTENT OF LESIONS OBSERVED AT NECROPSY IN SERIES III

	Group 1 (Controls)	Group 2	Group 3	Group 4	Group 5	Group 6
Average length of life in days	54	47	50	58	56	59
Percentage of animals showing:						
No lesions	..	..	..	6	..	..
Localized lesions	..	..	3	7	..	3
Moderate generalization	40	50	43	57	32	43
Generalization with caseous necrosis	60	50	54	30	68	54

Group 6. Thirty animals. Each received from three to forty-six injections of from 10 to 250 mg. each of the ethyl ester intramuscularly or intraperitoneally for several weeks prior to infection, and the same treatment was continued until death.

RESULTS

In the search of remedial agents for the treatment of tuberculosis, it can scarcely be hoped to find a substance which would save all or even a certain number of infected animals from death, as tuberculosis in the guinea-pig is a more acute disease and the natural resistance is much lower than in man. A full appreciation of this point of view led us to adopt the following criteria as evidence of therapeutic action: (1) the effect of treatment on the mortality curve; (2) the extent and character of the tuberculous process at the end of the experiment, and (3) the influence of treatment on the body weight. The study of the effect of the treatment on the mortality curve obviously necessitates working with a large number of animals. This is rarely done by workers in this field, probably on account of the large amount of work and considerable expense involved. Nevertheless, it appeared to us of great importance to carry out our work on a large scale in order to eliminate differences in individual resistance to the infection and differences in the behavior of the body to the drug, factors which undoubtedly are of great importance in the proper estimation of the value of drugs. The character of the pathologic changes at necropsy is generally recognized as a valuable index of the defensive power of the body against infection. Careful attention was, therefore, paid to the extent and character of the lesions. Changes in the growth curve of young animals as influenced by the disease and the treatment are also of unquestionable importance. A typical growth curve is given in Chart 3, and this shows that almost the normal rate of growth is maintained for a considerable length of time; later on a gradual decline sets in, which just prior to death becomes precipitous. In some animals the body weight changes very little for several weeks, until the resistance to infection gives way and the animal declines.[5] The advantage of using growing guinea-pigs is therefore obvious.

In Series I, some of the animals died in the course of some weeks with evidence of tuberculosis. The remainder of the animals were chloroformed sixty-five days after the inoculation. The animals of this series had received a very small dose of tubercle bacilli, only 0.001 mg., and the infection was evidently a very mild one, as shown by the fact that only 27 per cent. of the control animals had definite tuberculous lesions. In the group which was treated with sodium chaulmoograte,

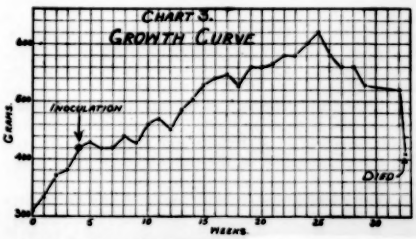


Chart 3.—Growth curve.

4. The chaulmoogra oil, ethyl ester and iodin compound were given in 5 per cent. emulsion in water, containing 20 per cent. alcohol.

5. De Witt, Lydia M.: Weight Curves of Tuberculous Guinea-Pigs, J. Infect. Dis. 27: 503-512 (Nov.) 1920.

72 per cent. showed evidence of tuberculosis, and in that with chaulmoograte and calcium lactate, 62 per cent. The calcium lactate was used with the idea that it might favor calcification. The conclusion seems therefore justified that the tuberculous process was not inhibited by the treatment in spite of a very mild type of infection.

In Series II the infection was of a more virulent nature than in Series I. Table 1 summarizes the weight changes and the average length of life of the animals of the three groups. Table 2 contains the data relating to the extent and character of the lesions found at necropsy, and Chart 1 the mortality curves. It will be seen that the treatment had no favorable action whatsoever. The mortality curves of the treated animals are somewhat more steep, which may possibly indicate that the treatment had a deleterious effect.

In Series III the animals showed a still more acute type of the disease, as is illustrated by Chart 2. The treatment had no effect on the morality rate, growth curve and extent of the lesions observed at necropsy (Table 3).

The iodin preparation was used on account of the work of Jobling and Petersen,[6] who showed that iodin has an inhibiting effect on the antiproteolytic ferments of the blood. It was thought that the iodin through indirect action might render the tubercle bacilli within the lesions more accessible to the drug. Emphasis should be placed on the fact that the animals in Group 6 were treated with ethyl esters before and after infection. Even this intensive treatment had no effect on the course of the disease.

The net result of this exhaustive experimental test of the value of chaulmoogra oil and its derivatives is therefore negative. After the completion of this work a paper appeared by Kolmer, Davis and Jager [7] reporting some experiments with chaulmoogra oil in the treatment of guinea-pigs infected with a bovine strain. Only six animals were treated, and the results were entirely negative.

THE GRAM STAIN IN THE DIAGNOSIS OF CHRONIC GONORRHEA*

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It has been repeatedly pointed out that the diagnosis of chronic gonorrhea by present staining methods is very unsatisfactory.[1] Factors which may serve as sources of error and effect the diagnosis are:

1. Choice and collection of the secretions and preparation of the films to be stained. Unless skill is shown in this selection of secretions and preparation of the film, the examination of the stained smear is of little value.

2. Variations in the technic employed in staining the films. There is nothing more discouraging or useless than to attempt to make a diagnosis from a poorly stained film of pus containing several kinds of organisms.

3. Occasional loss of the character by gram-positive cocci, which appear gram-negative.

4. Unusual resistance to decolorization by some strains of gonococci, which may appear gram-positive.

5. The fact that the gonococci may be few in number, atypical morphologically and extracellular and, when scattered among secondary invaders, difficult to recognize.

6. Possibility that the gonococci may be discharged intermittently, thus requiring daily examination for their detection.

7. Failure of the Gram stain to distinguish the gonococci from other gram-negative diplococci which are occasionally present in the genito-urinary tract.

These factors so affect the result of the examination that neither a positive nor a negative diagnosis can be considered conclusive unless supported by other evidence.

In staining a series of films made from different patients, it was noticed that some of the smears stained exceedingly well, with sharp differentiation between gram-positive and gram-negative organisms, while other smears stained poorly, with very little contrast between gram-positive and gram-negative organisms, regardless of how much care was taken in the staining process. We concluded that the poor results obtained could not, in all cases, be attributed to variation in the technic of staining. It was assumed that the poorer results obtained with some of the films may have been due to: (1) variations in the source of material from which the films were made; (2) variations in the technic employed in making the film; (3) the presence of a more varied flora, and (4) variations in the reaction of the secretions.

The secretions of the genito-urinary tract vary from alkaline to acid. In experimenting with aqueous solutions of dyes, it was noticed that the addition of sodium bicarbonate increased the contrast between the gram-positive and gram-negative organisms. This suggested the possibility that the poor results obtained in staining secretions from the genito-urinary tract might be due, in some cases at least, to the presence of acid. A few simple experiments demonstrated that acid affects the Gram reaction.

EXPERIMENTS

EXPERIMENT 1.—*To show the effect of lactic acid when the films are exposed to the acid before the staining process is begun:* A slide containing smears of *Neisseria catarrhalis, Staphylococcus aureus* and *Bacterium typhosum* was dipped in 10 per cent. lactic acid and stained by the modified Gram method described below, with the exception that the sodium bicarbonate was omitted.[2] The staphylococci were found to be partially decolorized.

EXPERIMENT 2.—*To show the effect of lactic acid when added to the violet dye on the slide:* The foregoing experiment was repeated with the exception that instead of exposing the unstained film to the acid the slide was flooded with the methyl violet and a few drops of 10 per cent. lactic acid

6. Jobling, J. W., and Petersen, William: The Therapeutic Action of Iodin, Arch. Int. Med. **15**: 286-302 (Feb.) 1915.

7. Kolmer, Davis and Jager: Chaulmoogra Oil in Tuberculosis, J. Infect. Dis. **28**: 265 (March) 1921.

* From the Pathological Laboratory, Leland Stanford Junior University School of Medicine, aided by a grant from the United States Interdepartmental Social Hygiene Board for Research in the Prevention and Cure of Venereal Diseases.

1. For a discussion of the uncertainties and sources of error and technic, of making the smears, see Report of the British Medical Research Committee, Special Report Series, Nov. 19, 1918. Norris, C. C., and Mickelberg, H. B.: Diagnosis of Gonorrhea in the Female by Staining Methods, J. A. M. A. **76**: 164, 1921.

2. These organisms were grown on peptic digest agar. This medium was made by adding 2 per cent. agar to peptic digest broth (Stickel and Meyer: J. Infect. Dis. **22**: 68 [July] 1918) and titrated to a reaction of *ph* 7.4. With the addition of 33 per cent. hydrocele fluid and a reduced oxygen tension, heavy growths of primary cultures of gonococci were obtained on this medium. Good secondary cultures were obtained without a reduced oxygen tension. This medium is more cheaply and easily made than veal infusion agar, and we recommend it in preference to the medium described by Schwartz and Davis (J. A. M. A. **76**: 1124 [Oct. 23] 1920). I am indebted to Mr. Frank Kolos for information and assistance in cultivating the gonococci.

were added and mixed with the dye. The staphylococci were found to be poorly stained with the violet dye.

EXPERIMENT 3.—*To show that lactic acid does not cause a permanent change in the staining reaction of the cell.* The slides used in the foregoing experiment were dipped in xylene to remove the immersion oil, washed with acetone to remove the xylene, dried, and flooded with the violet dye. A few drops of a 4 per cent. sodium bicarbonate solution were added to the dye on the slide and the staining process completed. The staphylococci were found to be heavily stained with the violet dye, in sharp contrast with the gram-negative organisms.

EXPERIMENT 4.—*To show that if the acid on the slide is neutralized with an excess of sodium bicarbonate, the film will stain as though it had never been exposed to the acid:* A slide similar to those used above was covered with the lactic acid, and then an excess of sodium bicarbonate added. On staining the slide, the staphylococci were found to be heavily stained with the violet dye.

EXPERIMENT 5.—*To show the effect of sodium bicarbonate when added to the dye on the slide:* Two slides similar to those used above were stained in the same way, except that to the violet dye on one of the slides were added a few drops of a 4 per cent. solution of sodium bicarbonate. On completing the stain, the staphylococci on the slide receiving the sodium bicarbonate were found to be more heavily stained with the violet dye than the staphylococci on the other slide.

EXPERIMENT 6.—*To show the effect of sodium bicarbonate when the organisms are mounted in the alkaline solution:* The organisms used in the foregoing experiment were mounted in a drop of the sodium bicarbonate solution, fixed and then stained as usual. The staphylococci were found to be more heavily stained with the violet dye than when the sodium bicarbonate was omitted.

EXPERIMENT 7.—*To show that sodium bicarbonate does not cause a permanent change in the cell wall.* Experiment 6 was repeated, with the exception that the dried films were treated with an excess of 10 per cent. lactic acid. The staphhylococci were poorly stained, indicating either reduced absorption or retention of the violet dye.

COMMENT

These experiments suggest that the reaction of the secretions of the genito-urinary tract may affect the staining of the organisms present. It remains to be determined whether there is ever enough acid present to account for the extreme difference in results obtained in staining smears from different patients. No attempt has been made to check up the reaction of the secretions with the staining of the smears.

It is evident from these experiments that the acid and alkali do not cause any permanent change in the cell wall. It is here assumed that the gram reaction is dependent on the cell wall. The sodium bicarbonate possibly operates by increasing the penetration or concentration of the violet dye in the cell. An examination of the films before decolorization has taken place shows that the gram-negative organisms are also heavily stained. This may be due to a heavier precipitate on the surface rather than to a greater concentration of the dye within the cell. The sodium bicarbonate does not appear to affect the rate of decolorization of the gram-negative organisms. The lactic acid does not cause a precipitate when added to the violet dye as the sodium bicarbonate does, and apparently has the effect of lessening the penetration or concentration of the dye in the cells.

Other possible explanations that must be considered are: (1) the effect of the alkali and acid on the cell wall, and (2) the effect on the size of the molecules of the dye-iodin precipitate.

Since some of the variations in staining may be associated with the age of the organisms present in the secretions, an experiment was made to determine the effect of sodium bicarbonate in the staining of old cultures:

EXPERIMENT 8.—Two slides were prepared, each with a smear from a 3 weeks old culture of *Staphylococcus aureus* and a 2 year old culture of *Clostridium botulinum*. The two slides were stained in the same way with the exception that to the violet dye on one slide were added a few drops of an 8 per cent. sodium bicarbonate solution.

On examination, the smears on both slides were found to contain gram-positive and gram-negative organisms. But the slide receiving the sodium bicarbonate solution had, in the films of both organisms, a larger percentage of gram-positive organisms and these were more heavily stained with the violet dye. Apparently some of the older organisms which had practically lost the power of resisting decolorization had become gram-positive on the addition of the sodium bicarbonate. This suggests that the sodium bicarbonate and lactic acid may have some other effect than merely influencing the concentration of the dye within the cell.

As already stated, some of the uncertainty in making a diagnosis of a gonococcal infection is due to the fact that gram-positive organisms may become gram-negative. Whether this change is due to acid, age, autolysis or leukocytic digestion has not been determined; perhaps all these factors play a part. The results obtained in Experiment 8 indicate that sodium bicarbonate, when added to the violet dye, will reduce the number of gram-positive organisms which, in pus or secretion, fail to retain the violet dye.

These experiments suggest the possibility of improving dye therapy by the addition of sodium bicarbonate. The sodium bicarbonate apparently causes a greater penetration and concentration of the dye in the cells. Therefore it should increase the antiseptic power of the dye. It is known that gentian violet inhibits the growth of gram-positive organisms in greater dilution than it does gram-negative organisms. This fact is made use of in selective mediums. If sufficient concentration of the dye is used it inhibits the gram-negative organisms. It will probably be found that the addition of sodium bicarbonate or other alkali will increase the toxic action of the dye on both gram-positive and gram-negative organisms. Experiments should be made to determine the value of alkali in dye therapy and the optimum concentration to be used.[3]

The following modified Gram stain will be found to give very satisfactory results in staining smears to determine the presence of gonococci. A more detailed account of the method, with explanations and precautions to be observed, is being published elsewhere.

TECHNIC FOR THE STAINING OF SMEARS FROM THE GENITO-URINARY TRACT

1. Make thin films, air dry, stain unfixed or use very little heat in fixing.

2. Flood slide with anilin gentian violet or a 1 per cent. aqueous solution of methyl violet. Thoroughly mix with the dye on the slide a few drops, 3 to 8, depending on the amount of dye, of a 5 per cent. solution of sodium bicarbonate. Allow to stand for two or three minutes.

3. Flush off the excess stain with the iodin[4] solution and cover with fresh iodin solution and allow to stand one minute or longer.

3. The experiments of Browning and of Davis have a bearing on this problem (Davis, E. G.: Urinary Antisepsis: A Study of the Antiseptic Properties and the Renal Excretion of Two Hundred and Four Anilin Dyes, Am. J. M. Sc. **161**: 251 [Feb.] 1921). Browning, C. H., and Gulbransen, K.: Hydrogen-Ion Concentration and Antiseptic Potency, with Special Reference to the Acridine Compounds, (J. Path. & Bacteriol. **23**: 106 [Oct.] 1919).

4. Iodin solution: 1 gm. of iodin, 2 gm. of potassium iodid and 100 c.c. of distilled water.

4. Wash in water as long as desired and blot off all free water until the surface of the film is practically free of water, but do not allow the film to become dry. The success of the stain depends largely on the proper control of this step.

5. Decolorize with acetone or acetone and ether (1 part of ether to from 1 to 3 parts of acetone) until the acetone flows from the slide practically uncolored. This usually requires less than ten seconds. The acetone should be placed on the slide; the slide should not be dipped in the decolorizer.

6. Blot dry. The slide quickly dries without blotting.

7. Counter stain for five or ten seconds with a 2 per cent. aqueous solution of safranin O. Exposure to the counter stain can be increased, depending on the excellence of the violet dye used.

8. Wash off excess stain by short exposure to water, blot and dry.

9. Immerse in xylene or turpentine for several minutes or until clear. Examine.

CONCLUSIONS

1. The addition of sodium bicarbonate increases the value of the Gram stain as an aid in the diagnosis of chronic gonococcal infection. It does this in two ways: (*a*) It results in a heavier concentration of the violet dye remaining in the gram-positive organisms. (*b*) It causes some of the gram-positive organisms which would otherwise appear gram-negative to retain the violet dye.

2. The addition of lactic acid interferes with the Gram reaction. Gram-positive organisms, in the presence of lactic acid, fail to absorb or to retain the violet dye as well as they do under neutral or alkaline conditions.

3. The alkali and acid do not affect the Gram reaction by producing a permanent change in the cell wall.

4. The addition of sodium bicarbonate will increase the number of organisms which retain the violet dye in old cultures of gram-positive organisms. The loss of gram-positiveness in old cultures may be due in part to the production of acid.

5. Sodium bicarbonate does not cause the gram-negative organisms to retain the violet dye.

6. The sodium bicarbonate probably affects the Gram reaction by increasing the penetration and concentration of the dye within the cell rather than by any action on the cell wall or the molecules of the dye-iodin precipitate.

7. The effect of sodium bicarbonate and lactic acid on the Gram stain suggests that some of the difficulty experienced in making a satisfactory Gram stain on smears from the genito-urinary tract is due to the presence of acid in the secretion.

8. The use of sodium bicarbonate in dye therapy is suggested by its action in the Gram stain.

9. The modified Gram stain presented is especially adapted to the staining of smears from the genito-urinary tract for the examination of gonococcal infections.

2321 Sacramento Street.

Pain in Syphilis of Heart.—Pain is by no means limited to the truly anginal cases, but it is one of the most common symptoms of the disease, sometimes it is limited to the precordium, but very frequently it is complained of as reflected into the back, into the shoulder, on either side—most frequently to the left—and, in the anginal types, as going down the arms. Precordial tenderness best elicited by firm deep pressure over the precordium is present in many cases. At times it is so acute as to cause marked discomfort when the outlines of the heart are being percussed out.—Harlow Brooks, *Am. J. Syphilis* **5**:233, 1921.

Clinical Notes, Suggestions, and New Instruments

A SIMPLE METHOD OF DETERMINING THE FRAGILITY OF THE RED CORPUSCLES

Bryce W. Fontaine, M.D., Memphis, Tenn.

While the literature abounds with references to the importance of determining the fragility of the erythrocytes in the diagnosis and differentiation of pernicious anemia, and the anemias of the hemolytic type, we are given no accurate technic that can be carried out in the average laboratory.

Realizing the need of some simple method for making this test, I have devised for use in my own laboratory a technic which seems to give satisfactory results. In its simplicity there is little chance for error.

The only materials necessary are nine tubes, 4 inches long and one-fourth inch in diameter, a 0.9 per cent. salt solution, and some freshly distilled water.

The corpuscular emulsion is made from whole blood, as I have found no advantage in washing the cells. The blood is thus measured in a pipet used for enumerating leukocytes: It is drawn up in the pipet only to the point marked "1," and this quantity is put into a tube containing 1 c.c. of the 0.9 per cent. salt solution; a second quantity of blood is drawn up into the pipet, and also added to the tube containing the salt solution. Thus two measures of blood are used in the case of normal blood; variations of this amount are explained later.

In each of the nine tubes is placed 0.1 c.c. of the corpuscular emulsion. To the first tube is added 0.1 c.c. of distilled water, and 0.8 c.c. of 0.9 per cent. salt solution; to the second tube is added 0.2 c.c. of distilled water, and 0.7 c.c. of 0.9 per cent. salt solution; to the third tube is added 0.3 c.c. of distilled water, and 0.6 c.c. of 0.9 per cent. salt solution; to the fourth tube is added 0.4 c.c. of distilled water, and 0.5 c.c. of 0.9 per cent. salt solution; to the fifth tube is added 0.5 c.c. of distilled water, and 0.4 c.c. of 0.9 per cent. salt solution; to the sixth tube is added 0.6 c.c. of distilled water, and 0.3 c.c. of 0.9 per cent. salt solution; to the seventh tube is added 0.7 c.c. of distilled water, and 0.2 c.c. of 0.9 per cent. salt solution; to the eighth tube is added 0.8 c.c. of distilled water, and 0.1 c.c. of 0.9 per cent. salt solution; to the ninth tube is added 0.9 c.c. of distilled water, and 0.0 c.c. of salt solution.

The plan in the accompanying tabulation shows how the tubes are charged, and the resulting dilutions.

HOW TUBES ARE CHARGED, AND RESULTING DILUTIONS

	1	2	3	4	5	6	7	8	9
Corpuscular emulsion, c.c.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Distilled water, c.c.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.9% salt solution, c.c.	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0
% salt solution	0.81	0.72	0.63	0.54	0.45	0.36	0.27	0.18	0.09

This gives us decreasing strengths of the salt solution, reading, from left to right: 0.81, 0.72, 0.63, 0.54, 0.45, 0.36, 0.27, 0.18 and 0.9 per cent.

The tubes are now incubated for one hour at 37 C., when the readings can be made; but the lines of demarcation are much more clearly defined if the tubes are placed in the ice-box for twenty-four hours. If this step is followed there will not be the slightest difficulty in determining the dilutions at which hemolysis begins and ends.

In making the readings, note should be made of the dilution at which hemolysis begins, as indicated by a very slight coloring of the supernatant fluid, with a moderate deposit of cells; the dilution at which hemolysis is marked, as indicated by a decided coloring of the supernatant fluid, and a barely perceptible deposit of cells; and the dilution at which hemolysis is complete, as indicated by a deep coloring of the supernatant fluid, with an absence of any deposit of cells.

This test is especially useful in the diagnosis of all hemolytic anemias, of either the acquired or the congenital type, as in these anemias the fragility of the erythrocytes is always

V. 7
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increased, whereas in pernicious anemia, the anemia of syphilis, and other severe secondary anemias their fragility is not increased.

In developing this technic I have used a number of normal bloods, and have found that hemolysis begins at a dilution of about 0.45 per cent., and is usually complete at 0.27 per cent.

The technic as outlined above is, of course, for normal blood, taking as a basis 4½ or 5 million erythrocytes. In anemias, in which the total count is always decreased, the quantity of whole blood taken for the test must be increased in proportion to the decrease in the total count; e. g., if the total number of erythrocytes is only 2½ million, double the quantity of whole blood should be used. This variation in the quantity of blood used can be readily understood, for the same amount of blood as used in the test on normals would contain too few cells, and the emulsion would be so weak in corpuscular content that the readings would be difficult.

In making this test on bloods from patients suffering from anemia, there should always be one or two controls of normal blood.

1109 Central Bank Building.

THE PHOTOGRAPHIC RECORD OF PHYSICAL SIGNS

ALBERT ROBIN, M.D., WILMINGTON, DEL.

The drawbacks to a diagrammatic record of the physical examination of the chest led me to experiment with the employment of photography for this purpose. To make the method available under ordinary conditions of office practice, I used a cheap plate camera and photographed the patients in my office, which receives daylight through a bay window. The average exposure was five seconds, with full opening, at a distance of 5 feet from the subject. These factors being fixed, it was not necessary to focus every exposure, and no time was lost in making adjustments of subject or camera.

For marking on the skin, tincture of iodin was found to serve the purpose admirably. A wooden applicator tipped with cotton or a fine camel hair brush may be used.

This kind of record is much superior to one made on a standard diagram.

1011 Washington Avenue.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

CALCIUM CASEINATE.—Calcii Caseinas.—Casein from cow's milk rendered partially soluble by combination with calcium, and containing not less than 1 per cent. of calcium.

Actions and Uses.—The diarrheal diseases of infancy are now generally treated by dietetic measures. A useful food may be made from the curd of milk and diluted buttermilk, the resultant mixture containing a moderate amount of fat, a small amount of sugar and a large amount of protein (casein) and salts, particularly salts of calcium. A mixture of calcium caseinate and milk is used.

Dosage.—For infants and children, calcium caseinate is administered in a mixture of milk and water or milk and gruel, as the physician directs, approximately 10 Gm. (⅓ oz.) being used in 500 c.c. (1 pint) of solution, and the mixture boiled. For adults, it may be mixed with milk, skimmed milk or buttermilk in the proportions of 20 Gm. (⅔ oz.) to 1,000 c.c. (1 quart) of diluent.

Calcium caseinate is a yellowish white, fluffy powder; free from "sour" or rancid odor, and having a characteristic, slightly saline taste; permanent in the air.

On agitation with warm water, calcium caseinate partially dissolves, forming a pseudo-solution or turbid suspension; insoluble in alcohol, ether or chloroform. The aqueous solution of calcium caseinate has a neutral or faintly alkaline reaction to phenolphthalein. The solution gives the biuret reaction and is precipitated by acids and by concentrated solutions of many salts.

If incinerated, calcium caseinate emits an odor characteristic of burning protein and leaves a residue consisting chiefly of calcium pyrophosphate.

Weigh accurately from 1 to 2 Gm. of calcium caseinate, heat in a silica dish until the material is charred and most of the carbon is consumed. Digest the residue with dilute hydrochloric acid; filter, dry the filter, ignite it and repeat the extraction with hydrochloric acid. Unite the acid extracts and make up the solution to 100 c.c. To 50 c.c. of the solution, add 1 c.c. of concentrated sulphuric acid and heat to boiling. Add 100 c.c. of alcohol, stir well and allow to stand over night. Collect the precipitate in a weighed Gooch crucible, wash it with alcohol until free from acid, dry it at 120 C. and weigh as anhydrous calcium sulphate, $CaSO_4$. The weight should correspond to not less than 1 per cent. of calcium, equivalent to not less than 1.4 per cent. of calcium oxide. To 25 c.c. of the solution of the ash add sufficient ammonium hydroxide to render neutral, add 2 c.c. of concentrated nitric acid and 2 Gm. of ammonium nitrate, heat nearly to boiling and add an excess of ammonium molybdate solution. Allow to stand over night, collect the precipitate on a filter, dissolve it in a small quantity of ammonia water, add an excess of magnesia mixture, allow to stand over night, collect in a weighed Gooch crucible, dry and heat to magnesium pyrophosphate in the usual way and weigh. The weight corresponds to not less than 0.6 per cent. of phosphorus, equivalent to not less than 1.35 per cent. of phosphorus pentoxide (P_2O_5).

Weigh accurately from 1 to 2 Gm. of calcium caseinate and dry it to constant weight at 100 C. The loss does not exceed 10 per cent. *(limit of moisture).*

Add 10 c.c. of water to about 1 Gm. of calcium caseinate, accurately weighed. Mix thoroughly with a glass rod and allow to stand for 15 minutes. Transfer to a Rohrig tube or a separator with 10 c.c. of ammonia-alcohol (1 volume of stronger ammonia water and 4 volumes of alcohol). Mix thoroughly, add 25 c.c. of ether, shake thoroughly for half a minute, add 25 c.c. of petroleum ether and shake again for half a minute. Allow to stand for about 20 minutes or until the liquids have separated. Draw off the ether solution as completely as possible, filtering through a pledget of cotton into a weighed flask. Repeat the extraction with ether-petroleum ether, using 15 c.c. of each solvent. Evaporate the combined extracts and dry the residue at 100 C. to constant weight. The residue corresponds to not more than 2.5 per cent. of the weight taken *(limit of fats).*

Determine the nitrogen in a weighed quantity of calcium caseinate by the Kjeldahl method. The nitrogen corresponds to not less than 14 per cent. of the moisture-free material.

Casec.—A brand of calcium caseinate N. N. R.

Manufactured by Mead Johnson and Company, Evansville, Ind. No U. S. patent or trade mark.

BENZYL SUCCINATE.—Benzylis Succinas.—Dibenzyl Succinate.—$C_6H_5CH_2.OOC.CH_2CH_2.COO.CH_2C_6H_5=C_{18}H_{18}O_4$.—The dibenzyl ester of succinic acid. It contains not less than 99 per cent. of benzyl succinate.

Actions and Uses.—Benzyl Succinate lowers the tone of unstriped muscle. In this respect its action is similar to that of benzyl benzoate. It is superior to benzyl benzoate in being less irritating, less nauseating and in containing a greater proportion of benzyl radicle. It has been suggested as a remedy against renal, biliary, uterine and intestinal colic, excessive intestinal peristalsis, dysmenorrhea, hiccough, and other spasms of unstriped muscle. Its clinical use is still in the experimental state.

Dosage.—0.3 to 1 Gm. (5 to 15 grains).

Benzyl succinate is a white, or faintly yellowish-white, crystalline powder; odorless; almost tasteless; permanent in the air.

Benzyl Succinate is almost insoluble in water, soluble in alcohol, ether and chloroform; also soluble in the fixed and volatile oils.

Benzyl Succinate melts at 45 C.

Boil about 1 Gm. of benzyl succinate with 25 c.c. of half-normal alcoholic sodium hydroxide in a reflux apparatus for 1 hour. Cool, filter, wash the precipitate with alcohol, dissolve the precipitate in the minimum quantity of warm water, and acidify with concentrated hydrochloric acid. Recrystallize the residue once from a few c.c. of hot water. The crystals of succinic acid melt at 182 C. To the alcoholic filtrate from the sodium succinate add 25 c.c. of water and boil until the alcohol is removed. Shake the alkaline solution twice each with 10 c.c. of ether and evaporate the solvent. The residue has the odor of benzyl alcohol.

Add about 1 c.c. of diluted sulphuric acid to 10 c.c. of tenth-normal potassium permanganate, add 0.1 Gm. of benzyl succinate and warm the mixture. The odor of benzaldehyde becomes perceptible.

The solution of Benzyl succinate in alcohol (1-25 should be clear and colorless).

Shake 1 Gm. of finely powdered benzyl succinate with 100 c.c. of water and filter. The filtrate should not be more than faintly acid to litmus paper *(succinic acid)* and separate portions should not yield precipitates with barium chloride test solution *(sulphate)*, silver nitrate test solution *(chloride)* or be colored violet by ferric chloride test solution *(salicylate)*.

Incinerate about 1 Gm. of benzyl succinate, accurately weighed. Not more than 0.1 per cent. of ash remains.

Boil about 1 Gm. of benzyl succinate, accurately weighed, for 1 hour in a reflux apparatus with 20 c.c. of half normal alcoholic potassium hydroxide, cool the solution, add a few drops of phenolphthalein test solution, and titrate with half normal hydrochloric acid until the disappearance of the pink color. The amount of half-normal alcoholic potassium hydroxide consumed corresponds to not less than 99 per cent. of benzyl succinate.

Tablets of Benzyl Succinate-H. W. and D.: Each contains benzyl succinate N. N. R., 5 grains.

Prepared by Hynson, Westcott and Dunning, Baltimore.

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SATURDAY, SEPTEMBER 24, 1921

A COMPARISON OF GREEK AND MODERN SCIENTIFIC METHODS

The contrast between the scientific contribution of today with that of the ancient Greeks is a striking one. The Greek writers, as Singer[1] has recently pointed out in a scholarly essay, set down only their conclusions. Their methods of work, and even their verificatory observations, are not published. But consider the contributions to modern scientific literature. "The author begins," says Singer, "by pointing out a gap in knowledge . . . Having stated his problem, he reviews the efforts made by others to illumine this dark place in knowledge. He points out some of their errors or decides to accept their work and base his own upon it. Perhaps he distrusts their experiments or would like to reinterpret their results. Having summarized their labors, he details his own experiments and observations. But he is not able to tell us all of these. . .. . Space will not permit him to tell us how he embarked on many different lines of work and abandoned them as unprofitable or too difficult, nor anything of the months or years spent in merely repeating the experience of others. He says no word of how he acquired and improved his experimental skill and technical experience. He tells merely of those developments of his work that have yielded him results. . . . When by gradual steps he had at last reached, or perhaps with the instinct of genius had more quickly discerned, a profitable direction for his investigations, he reached after a time those conclusions which his final line of work has verified and rendered more exact. It is this final process of verification that he mainly describes in his article, and it is the details of this that occupy the bulk, perhaps nineteen twentieths or more, of all that he has to say. Then, having described these verificatory experiments, he summarizes his conclusions in a short paragraph of a few lines."

Those acquainted with the history of biology will admit that more rapid strides have been made within the past century than in the previous thousands of years of which record is available. Where lies the reason? The Greek mind was brilliant; the Roman mind was logical; the Arabian and Semitic minds were searching and keen. "It is the constant solicitude for the exact mode of investigation," says Singer, "a solicitude characteristic of our own science, that we so often seek in vain among the Greeks." The method of modern scientific research is before all things and above all things a process of verification, a process slow, tedious, often difficult and dull. "Credulity," he continues, "is the Pandora of Science, promising everything, yielding nothing . . . It is true that the great Greek minds were singularly free from that baser credulity that we call superstition—from that they were preserved by their conviction that order reigned in Nature—but few indeed were the Greeks who showed an adequate scientific skepticism. The Greek often accepted data without scrutiny, induction without proof. His very brilliance was a source of weakness, and he was often led to believe that the order of phenomena must perforce correspond to his own admirably clear conceptions."

The striking contrast which Dr. Singer so brilliantly elucidates is a much needed emphasis on factors to which the attention of the medical profession cannot be called too frequently. The gradually changing qualifications for entrance into medical schools and for a diploma in medical science have continued to lay more and more stress on training in the biologic and fundamental sciences. The value of such training admittedly lies not so much in the knowledge itself but in the teaching and elucidation of the scientific method. More than one leader in medical science has urged the cultivation of a strong and vigorous skepticism as the most valuable attribute of a scientist. Never was there a time when such skepticism was needed more than at present. Unfortunately, as the student departs from the laboratories of his alma mater and proceeds farther and farther into a world populated by a credulous public, his habits of mind change and he drifts with the current of loose thought and easy going credulity. "If you trust before you try, you may repent before you die, is as good a maxim in scientific as in human relationships," says Dr. Singer. The lesson is an excellent one, founded on keen observation and a magnificent historical perspective.

But let us not stop with this. Dr. Singer, we fear, too greatly flatters our modern contributors to scientific literature. The article which he has so ably outlined, with its introduction, its analysis of previous efforts, its statement of a problem, its presentation of useful methods employed, its statements of results and finally its succinct conclusions, appears, it is true, fairly frequently in our literature. But far more frequently appears the prolix report of trial and error, of nonessentials and of useless statistics, of repetition of

1. Singer, Charles: Greek Biology and Its Relation to the Rise of Modern Biology, in Studies in the History and Methods of Science, Oxford University Press, 1921.

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much published "cases in the literature," and finally, no results and no conclusions, because, after all, there are none.

DIPHTHERIA PREVENTIVE MEASURES

Modern civilization, with its present-day methods of living and migration, and particularly the large influx of urban populations resulting in crowded conditions in many localities, is making the prevention of exposure to infection in large cities practically, if not absolutely, impossible. In many cases, for instance, the carriers of danger are not detected and therefore cannot be avoided. They represent an unrecognized and often an unsuspected menace, in spite of vigorous efforts to avert harm to mankind. It seems likely, therefore, that, until some better plan shall have been evolved in this connection, preventive medicine and public health activities must be directed toward the securing of effective immunity to certain diseases throughout the susceptible groups in the population.

It is on such a basis that smallpox has been so well controlled in most civilized communities. Preventive vaccination is instituted in early childhood wherever sane principles of public hygiene are enforced. The dangers which may ensue from a neglect of this artificial mode of inducing immunity are now being manifested in certain districts of Great Britain where the antivaccination cult has gained some hold on the misguided populace. It now seems likely that the securing of widespread acquired immunity is to be an important aim in the prevention of diphtheria, a disease in which the carrier problem has by no means been solved. In this work the Schick test, whereby the existence of immunity or susceptibility to diphtheria can be determined with ease and precision, seems destined to play an important part.

Few, if any, organizations have had larger experience than the department of health in New York City with the application of the Schick reaction. Thousands of tests have been applied to the schoolchildren of the great metropolis. The studies of Zingher,[1] recently reported in detail in THE JOURNAL, indicate how life in congested districts may effect immunity. The children of the more well-to-do classes of our population show a much higher proportion of positive Schick reactions than do the children of the poorer classes. Relative segregation of the first, crowding and close contact of the second, probably account for these results. Zingher believes, in fact, that the so-called "natural immunity" depends to a large extent on contact immunity developing after repeated exposures and mild infections with the diphtheria bacillus. Zingher's studies of the reaction of racial types suggest, if they do not actually demonstrate, that the factors of race and hereditary family tendency also seem to influence considerably the development of natural immunity to diphtheria.

In the recent tests of more than 52,000 schoolchildren in New York, those who gave a positive test were injected with toxin-antitoxin mixture to secure active immunization. In view of the fact that the problems of most effective dosage and combinations as well as the rapidity of the development of immunity and its permanence are still under discussion, the outcome of the large scale experiment in New York will be awaited eagerly by all interested in this important field of preventive medicine. The results of Zingher's Schick retests made after from two to five months indicate that it is better to wait at least six months before testing for the development of an active immunity after toxin-antitoxin injections. Two injections of toxin-antitoxin, even of a larger amount, do not give as good results as three injections of a smaller amount. The mixture should be underneutralized and yet perfectly safe for the human being. Children under 6 months of age should not be injected with toxin-antitoxin. They are generally immune (from 85 to 90 per cent.) and do not respond to these injections, as is shown when the Schick test is reapplied later. All children from 6 months to 5 years of age should be injected with toxin-antitoxin.

For the present, attention must still be directed to securing standard, dependable and easily adopted procedures of testing and immunization. If the medical profession accepts the contention that the Schick test is a reliable indication of the susceptibility to diphtheria and, further, that the currently proposed methods of toxin-antitoxin injections are effective in developing a lasting immunity, a great step in progress will have been made. Are we not prepared already to say that diphtheria preventive efforts have become directed to a promising task with hope of success?

1. Zingher, Abraham: Diphtheria Prevention Work in the Public Schools of New York City, J. A. M. A. 77:825 (Sept. 10) 1921.

PARATYPHOID CARRIED IN HEAD CHEESE

Contaminated water and milk are now recognized as frequent transmitters of disease, especially typhoid fever. When there is an outbreak of any infectious intestinal disorder, it has become the customary thing for the health officer to seek its source in these two common articles of human consumption. It is more rare to find a food substance responsible, as was discovered to be the case in a recent epidemic in Montana.[1]

The first cases to develop in this epidemic, thirty in number, were diagnosed as influenza. In view of the fact that there had been no outbreak of influenza in the county since early in the year, and that there was a total absence of pulmonary symptoms in all of the patients, this diagnosis was doubted. Laboratory assistance was sought, and it was found that cultures

1. Foard, F. T., and Walker, T. F.: Paratyphoid Fever: Report of an Outbreak in Cascade, Mont., Caused by Head Cheese, Pub. Health Rep. 36:2095 (Sept. 2) 1921.

of the feces, blood cultures and Widal tests revealed the presence of general infection with *Bacillus paratyphosus* B. In the ordinary routine of investigation, the first possible source studied was the water supply and the sewage disposal. As this failed to reveal any definite results, a questionnaire was submitted to each of the patients, and the information thus obtained was carefully analyzed. It was discovered that eighteen of the patients whose answers were received during the first day of the investigation had eaten head cheese purchased from a single meat market within a period of three days. This was the only article of diet of a common source eaten by all of the patients. It was eventually found that, of the thirty-four patients who had become ill, twenty-eight had eaten of this cheese, and that the remaining six were members of families wherein the cheese had been served and in which other cases existed. On questioning the proprietor of the meat market who prepared and sold the suspected food, it was learned that his wife had been ill for a period of approximately four days, three weeks before the outbreak, and that she had assisted in preparing the suspected food two days before it was placed on sale.

The carefully worked out and scientific investigation of this epidemic is an excellent example of the character of modern research in determining the causes of epidemics. All of the resources of medical science are utilized, and the accumulation of evidence almost inevitably points to the guilty factor. Such research is comparable to the most intricate problems of criminal detection. The public may rest assured that the detection of criminal attacks on the public health is at least as efficiently performed by the sanitary police as is the detection of human criminals by the department of public safety.

Current Comment

HEALTH EDUCATION BY THE FEDERAL GOVERNMENT

As announced last week,[1] the United States Public Health Service is arranging to hold twenty-five health institutes in the larger cities throughout the country. These institutes are to be conducted on a plan similar to the farmers' institutes under the direction of the Department of Agriculture, which have been so instrumental in improving rural conditions. Each institute is to cover a week, including lectures and demonstrations by health officials and social welfare workers on child hygiene, nutrition, communicable diseases, industrial hygiene, mental hygiene, sanitary engineering, public health administration and similar topics. Each subject is to be discussed by a recognized authority. Special evening meetings for the public will also be held at which popular health talks will be given. The inauguration of this plan will, it is hoped, mark the beginning of a new era of governmental health work. It is being more and more recognized that better instruction and wider knowledge of health subjects are fundamental to better conditions. The solution of our health problems can never be secured by indiscriminate appropriations of federal funds or by the multiplication of federal office holders. As Mr. H. G. Wells points out in his "Outline of History," public understanding and harmonious action, whether national or international, can come only through increased knowledge. A large portion of our health problems are essentially personal in character. The appropriation of money and the multiplication of administrative machinery can never solve them. Health standards will be elevated only as the public acquires more knowledge. The U. S. Public Health Service is to be congratulated on inaugurating this plan, which is deserving of all possible success.

1. Public Health Service Institutes, J. A. M. A. 77:950 (Sept. 17) 1921.

THE INCREASE IN SUICIDE

From time to time, THE JOURNAL has commented on the factors underlying attempts at suicide, and has emphasized that this is a problem which involves in its analysis the application of all the biologic sciences and a thorough study of anthropology and psychology, as well as economics. The cause is fundamentally temperamental or psychologic, but minor factors may play a significant part in the final determination. From 1915 until the present year there was a continuous downward trend in the suicide death rate. However, there has now been a marked increase in the number of suicides, and the figures just compiled by the Metropolitan Life Insurance Company reveal an increase of 26 per cent. in the rate for 1921 over that for 1920 among its policy holders. In connection with these figures, a graph is presented for the last ten years. For the years 1911 to 1915, preceding the intense industrial activity incident to the war and below the average in economic prosperity, the suicide death rate remained stationary. In the second period, beginning with 1915, years of great economic expansion and prosperity, the suicide rate markedly declined. Now with changing times, beginning with the end of 1920, the suicide rate mounts month by month so that the rate for the whole year will be much higher than for the preceding one. The suicide rate appears to reflect not only the thought of the time but also the economic situation.

NEW OPIUM LAWS IN GREAT BRITAIN

In compliance with the agreement at the Hague International Opium Convention in 1912, Great Britain in 1920 adopted a law for the regulation of traffic in narcotic drugs. This bill would doubtless have been adopted long before, had it not been for the war. The regulations under the act went into effect, September 1.[1] "As originally drafted by the Home Office," says the *British Medical Journal* editorially, "they were open to much legitimate criticism; but after emendations by a departmental committee, in accordance with the recommendations of the British Medical Association, these are now in a form better calculated to achieve

1. For summary of these regulations, see p. 1043, this issue.

the end desired without impeding the legitimate use of the drugs in question." In addition to the international agreement under the Hague Convention, the Versailles treaty, creating a league of nations, contained a paragraph pledging all of the powers that were signatories to the treaty to enact effective laws for the regulation of dangerous drugs within twelve months from the time that these treaties went into effect. The advisory committee appointed by the Council of the League of Nations will present a report at the assembly of the league in Geneva this month, summarizing the action already taken by the various nations. The advisory committee, on the initiative of Dr. Wellington Koo, Chinese minister to Great Britain, proposes to undertake investigations to ascertain approximately what amount of opium, morphin and cocain is required for legitimate medical purposes with a view to inaugurating international methods for restricting the manufacture of these drugs to the amount necessary for medical and scientific requirements. It has been generally recognized by those interested in the regulation of narcotic drugs that this problem could never be satisfactorily solved except through general international agreement and cooperation. Restriction of the growth and manufacture of these drugs to the amount necessary for legitimate needs, and international cooperation for the prevention of smuggling across boundary lines, are the most essential features in any plan for the control of this traffic. The problem is world wide, and the cooperation of all civilized nations is essential for its solution.

GERMAN CHEMICAL PROPAGANDA

As was recently pointed out in these columns, the World War made it both necessary and possible for the United States to develop its chemical industry. This industry, while in its infancy, has resulted in giving to the American people an ample supply of useful drugs, reasonably low in price, while certain pharmaceutical products on which German concerns formerly had a monopoly are today sold at prices below the prewar level. This development has been possible because of the practical absence of foreign competition of any considerable extent. But Germany is getting on her feet again and will unquestionably make every effort to regain the American markets so largely controlled by her before the great war. In this connection the following news item, taken from the *Münchener medizinische Wochenschrift*, Aug. 26, 1921, is of interest:

"The firm of E. Merck (Darmstadt) has had a unique film prepared which gives a survey of its various forms of activity. It is to be used in advertising in foreign countries the German chemical and pharmaceutical industry. Excellent pictures are produced not only of the buildings of the extensive plant but also of scenes in the various factories and machine shops. Beginning with the raw material and leading up to the finished product ready for shipment, the manufacture of the most important drugs is shown; also the methods of producing therapeutic serums, with a glimpse at the enclosure in which the animals needed are kept. The onlooker gets also an insight into the work of the mercantile departments. Before the film should start on its world journey, it was shown in Darmstadt, August 14, to a circle of invited guests. The very interesting production, which consists of five parts, required an hour and a half for its exhibition, without oral demonstration."

Here is food for thought.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

GEORGIA

Offer Funds to Medical School.—A report states that the General Education Board and Carnegie Corporation have jointly promised $100,000 to the Medical College of the University of Georgia, Augusta, to be paid at the rate of $20,000 a year for the next five years, on condition that a like amount each year is raised by the college authorities from other sources. A campaign to obtain the additional funds has been started by the medical school.

ILLINOIS

Personal.—The governor has appointed as state alienist, Dr. Charles F. Reid, superintendent of the State Hospital at Dunning.

Chicago

Commission Appointed to Advise on Diphtheria Control.—Owing to the increasing of diphtheria and the comparatively high death rate from this disease, Health Commissioner John D. Robertson has appointed a commission of pediatricians and civic workers to investigate the possibilities for securing adequate control.

MARYLAND

Personal.—Dr. Allen Fiske Voshell, former assistant in orthopedics at the Johns Hopkins Medical School, has resigned, and with the opening of the University of Virginia Medical School at Charlottesville, September 19, will take charge of the department of orthopedic surgery in that institution.——Dr. Brice W. Goldsborough, Cambridge, who underwent a serious operation at Parry Sound, while on a vacation in Ontario, is recuperating at his brother's home at Guilford, Baltimore, and is expected to return soon to Cambridge to resume his practice.——Dr. Paul W. Clough, former associate full-time professor of medicine, Johns Hopkins University Medical Department, has been appointed professor of medicine at the medical school, University of Maryland. Dr. Clough's acceptance of the position was confirmed through Dr. Maurice C. Pincoffs, professor of medicine, University of Maryland, who is responsible for the organization of the faculty of that department.

MASSACHUSETTS

Boston

Personal.—The mayor has appointed Dr. Moses Victor Safford as acting deputy health commissioner of Boston, to succeed the late Dr. David D. Brough. Dr. Safford has had more than twenty years' experience with the immigration service.——Dr. William P. Supple has been promoted to the position of resident surgeon at the City Hospital. Dr. George H. Hooper succeeds Dr. Supple as resident anesthetist.

MICHIGAN

State Commissioner to Supervise All Health Work.—The state administration board, having decided that there was considerable conflict between the various commissions administering to state institutions and the state department of health, August 31, gave the state health department complete authority over the health divisions of all state institutions. Dr. Richard M. Olin, health commissioner, will act in a supervisory capacity over the institutional physicians, and, according to the orders of the board, all appointments, salary raises and schedules of duty will be approved by Dr. Olin.

Study of Active Immunization Against Diphtheria.—The bureau of laboratories, Michigan Department of Health, under the direction of Dr. Richard M. Olin, commissioner of health and the superintendent of the Michigan Home and Training School, recently completed a study of the active immunization against diphtheria of the Michigan Home and

Training School. In October, 1920, 1,500 were Schick tested. The 229 showing positive reactions were given three inoculations of toxin-antitoxin mixture, and the Schick test was reapplied in July, 1921. Approximately 91 per cent. have been made immune. Prior to the time that active immunization was started in the Michigan Home and Training School, diphtheria had been ever present, and the institution expended several thousand dollars a year for temporary immunization of contacts, maintaining quarantine, and salaries incident to the closing of the school. There has been only one case of diphtheria in the institution since the first of November, and that was in a person who developed diphtheria the third day after arrival at the institution. There is still a high percentage of carriers of virulent bacilli among the children. The chronological grouping of the patients covers all ages from infancy to 76. The study seems to indicate a constitutional tissue immunity of some individuals against diphtheria.

NEW YORK

Personal.—Dr. Frederick W. McSorley, Raybrook, has been appointed director of the division of tuberculosis of the New York State Health Department, to succeed Dr. Malcolm F. Lent, who resigned recently. Dr. Elsie Blanchard, formerly supervisor of child welfare centers of the division of child hygiene, is acting as director of that division.

Funds Received for Medical School.—It is reported that the Albany Medical College has succeeded in raising $120,000—$40,000 a year for the three years—which was necessary to secure a gift of $60,000—$20,000 a year for three years—from the Rockefeller Foundation. This assures the college an additional income of $60,000 per year for the next three years.

Poliomyelitis Meeting.—Because of the interest of the community due to local cases of poliomyelitis, the state department of health, in cooperation with the local health department, invited Dr. Simon Flexner, director of the Rockefeller Institute, to speak on that subject at the Utica State Hospital, September 8. The meeting was held under the auspices of the Oneida County Medical Society, and was open to all members of the medical profession of Oneida County and adjoining counties, and also to health officers.

New Health Films Available.—Three new motion picture films have been purchased by the state department of health and are now available to public health workers. These films are on "Mouth Hygiene," "Saving the Eyes of Youth" and "Swat the Fly." Each of these films is in one reel and takes about twenty minutes. They are nontechnical in character. They are lent without charge within the state of New York. The health department is now cooperating in the production of a film on water supply in the farm home. Two reels are devoted to showing the rural resident how he may install a complete plumbing system in his house. The difficult parts of the plumber's trade are shown in detail.

New York City

Fined for Violation of Harrison Narcotic Law.—Dr. Harry W. Fisher was recently fined $500 in the United States district court when he pleaded guilty to furnishing drug addicts with prescriptions and drugs in violation of the Harrison Narcotic Law.

New Jewish Hospital.—The United Israel-Zion Hospital, located on Tenth Avenue, between Forty-Eighth and Forty-Ninth streets, in the Bay Ridge Section of Brooklyn, is seeking $100,000 for the completion of its new building, which is being erected at a cost of $1,000,000. Plans have also been laid for the raising of funds for the erection of a nurses' home in connection with the hospital.

East Side Tenement District Healthiest.—Statistics recently made public by the health department show, contrary to the general belief, that the healthiest section of the city is not that in which wealth dwells. The lowest mortality in the city has been placed in Sanitary District 26, which consists of ten square blocks, running from Avenue A to Avenue B, and extending from Third to Ninth streets. In this section the mortality rate, compared with that of the city as a whole, has been cut in two. The population of the district is 33,373, and many of the residents are foreign born. There are more than 3,000 persons in each block, yet the mortality rate is 6.44 for each thousand. The infant mortality rate for the district is 52 per thousand, while the infant mortality rate for the city as a whole is 85 per thousand.

Polyclinic Demands Return of Hospital.—The trustees of the Polyclinic Hospital have drawn up a petition demanding that the U. S. Public Health Service return this institution to the city of New York inasmuch as it should be serving a section of the city with a population of nearly 1,000,000 people. Five hundred graduate and student nurses of the hospital are circulating the petition which characterizes the occupancy of this hospital by the government as "unjust, un-American and akin to confiscation." Commenting on the situation, Surg.-Gen. Hugh S. Cumming is reported to have said that the U. S. Public Health Service has been seeking an institution in this city more suited to the care of ex-service men for over a year. Such an institution he expects to have in the near future, and then the government will vacate both the Polyclinic and the Fox Hill hospitals.

OHIO

Sentenced for Illegal Operation.—It is reported that Dr. Graham W. Scott, who is awaiting an appellate court ruling on a sentence of from one to seven years given him for performing another illegal operation, has pleaded guilty to performing an illegal operation on Elizabeth Schulte, which contributed to her death, has been sentenced to seven years in the Ohio state penitentiary.

Establishment of a Bureau of Tuberculosis.—The governor has announced the establishment of a bureau of tuberculosis in the state health department, in operation, September 13. The last legislature set aside $10,000 for antituberculosis activities, and the first work of the new bureau will be the establishment, in cooperation with local health authorities, of tuberculosis clinics for the rural districts. Dr. Jackson A. Frank, former chief of the bureau of venereal diseases, has been made head of the new tuberculosis bureau. Dr. Pearl M. Wright, Columbus, will succeed him in the bureau of venereal diseases.

Cincinnati Health Exposition.—The Cincinnati Academy of Medicine is taking an active part in preparations for the health exposition, to be held October 15-22. Dr. Carey P. McCord, professor of preventive medicine, University of Cincinnati College of Medicine, is chairman of the educational exhibits committee. Drs. Otto P. Geier and Jacob V. Greenebaum are on the program committee. Col. Peter E. Traub, commandant of the military post at Fort Thomas, Ky., is chairman of the executive committee in charge of the exposition, and Dr. Julian E. Benjamin is vice chairman of the executive committee. As mentioned in THE JOURNAL, August 27, Dr. Charles Bolduan, chief of the section of public health education, has arranged to send to Cincinnati the exhibit shown by the U. S. Public Health Service at the Chicago pageant, and it is expected that his assistant, Crittenden Marriott, the Kentucky novelist, will be in personal charge. The exhibition being arranged by the Academy of Medicine, under the direction of Dr. Kennon Dunham, chairman, will be fitted up as a completely equipped doctor's office and consultation room. A free consultation service where visitors to the exhibition may obtain advice on health matters will be conducted by well known specialists. The Cincinnati branch of the National Association of Industrial Physicians will have a fully equipped first aid station. Modern methods in factory construction showing that the health of factory workers may be safeguarded will be demonstrated. Children coming to the exposition will be examined free of charge at the model clinic, which will be conducted by the Babies' Milk Fund Association. The board of park commissioners will show a model playground and model community center. A series of contests, all having a definite relation to health and health measures, will figure prominently on the program, and practically all the health activities of the public schools will be shown by the board of health. While a limited quantity of commercial space is being sold to defray the expense of the exposition, it is specified that these exhibits must have a definite relation to health.

PENNSYLVANIA

Personal.—Dr. Mary Riggs Noble succeeds Dr. Ellen C. Potter as chief of the division of child health in the state department of health.—Dr. Ellen C. Potter has been appointed head of the bureau of child welfare in the department of welfare. Dr. Potter is a graduate of the University of Pennsylvania and formerly a member of the staff of the Women's Medical College.

Typhoid Epidemic in Reading.—A typhoid fever epidemic has broken out in a factory in West Reading. Twenty-nine cases have been discovered among the employees of the Penn Pants Company. Sixty-five other employees are reported ill, but their cases have not been diagnosed as yet. Two health engineers and three nurses of the state board of health arrived to investigate.

Philadelphia

State Physicians to Meet.—The seventy-first annual meeting of the Medical Society of the State of Pennsylvania will be held in Philadelphia from October 3 to 6, inclusive. The treatment of disabled soldiers will be one of the subjects that will be discussed.

WISCONSIN

State Medical Meeting.—The seventy-fifth annual meeting of the State Medical Society of Wisconsin, was held in Milwaukee, September 7-9, under the presidency of Dr. Mathias A. McGarty, La Crosse. Among the principal speakers were: Drs. Frederick J. Gaenslen, Milwaukee; Robert E. Farr, Minneapolis; John W. Powers, Milwaukee; Edwin Henes, Milwaukee; August F. Jonas, Omaha, and William H. Washburn, Milwaukee. The following officers were elected for the ensuing year: Dr. Sidney S. Hall, Ripon, president; Dr. Louis M. Warfield, Milwaukee, first vice president; Dr. Spencer Beebe, Sparta, second vice president; Dr. Rolla Cairns, River Falls, third vice president.

WYOMING

State Medical Meeting.—At the nineteenth annual meeting of the Wyoming State Medical Society, held at Casper, September 6-8, the following officers were elected for the coming year: president, Dr. Elmer Kell, Rawlins; vice president, Dr. Isaac N. Frost, Casper; second vice president, Dr. Galen E. Fox, Cheyenne; third vice president, Dr. Edward M. Turner, Laramie; secretary, Dr. Carl Whedon, Sheridan, and treasurer, Dr. Chester Harris, Basin. Sheridan was selected for the 1922 convention.

CANADA

Personal.—Dr. T. M. Sieniewicz of Halifax, N. S., formerly connected with the tuberculosis sanatorium at Kentville, N. S., has been appointed examiner of tuberculosis on the Massachusetts-Halifax Health Commission. He succeeds Dr. Delmar A. Craig, the first appointee to this position.

Public Health News.—Dr. Charles J. C. Hastings, M. O. H., Toronto, has recently issued a statement to the effect that the rumor that an epidemic of typhoid fever is prevalent in the city is without foundation, also stating that there are thirteen fewer cases now than there were in the same period in 1920. One of the embellishments attached to the rumor is that all hospital nurses are being inoculated especially against this disease. Mr. E. A. Gray, superintendent of the General Hospital, denies this, stating that hospital nurses are inoculated regularly every year.

Hospital News.—In addressing a meeting held under the auspices of the Academy of Medicine at Toronto recently, Lieut.-Col. Henry Smith, C. I. E., I. M. S., India, told of his experiences running a hospital there on $4,000 a year, in which 600 surgical beds were filled for four months in the year. He explained the difficulties of running such an institution on this small allowance, which did not allow the purchase of modern equipment, etc.——At a meeting of the Ontario Neuropsychiatric Association held recently at the Ontario Hospital at Mimico, the question of the guarding of insane persons appearing in the courts was discussed by prominent Canadian physicians. Hon. W. E. Raney, the attorney-general, who was present, was greatly impressed by a paper read by Dr. Edward Ryan of Kingston, the president of the association, who suggested that a commission of professional psychiatrists be appointed by the crown to advise on the questions on insanity at trials. The attorney-general pledged his support to this, and stated that if a commission was appointed he would supply a legal adviser and undertake the expenses of the commission. Dr. Ryan contended that the time had arrived when a radical change should be made in medicolegal procedure and advocated legislation in this connection. Dr. Nelson H. Beemer, Mimico, medical superintendent of the hospital, read a paper in which he suggested that inmates should be given remuneration for work done. He declared that such a system would be educative and would increase production and diminish destruction.

GENERAL

Scientific American to Become Monthly Periodical.—The *Scientific American*, which has been issued since 1845 as a weekly periodical devoted to advances in industry, invention and science, will hereafter, it is reported, be published as a monthly periodical in combination with the *American Scientific Monthly*.

Licensure Certificate Lost or Stolen.—Information has been received that the reciprocity certificate issued by the California Board of Medical Examiners to Dr. Claude C. Chick has disappeared. State licensing boards are warned to be on the lookout for this certificate, since an impostor may present it in an effort to secure authority to practice medicine.

The Truth About Vivisection.—We quote the following from *Science*, September 16:

> In the *Woman's Home Companion* for July, 1921, is the best paper on this subject I have ever seen, called "The Truth About Vivisection," by Mr. Ernest Harold Baynes. Mr. Baynes first read the literature on both sides and then visited practically all the laboratories from the Mayos' at Rochester, Minn., to the eastern seaboard. He visited especially the Rockefeller Institute several times, also a number of European laboratories. He became thoroughly convinced (1) that the experiments were not cruel; (2) that the statements in the literature of the anti-vivisectionists were often garbled and utterly misleading, and (3) that the results to animals themselves as well as to human beings were of enormous benefit. Then he wrote the article, and Miss Lane, the editor of the *Companion*, bravely printed it.
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> The especial significance of his writing such an article lies in his nation-wide reputation as a lover of animals and their protector. He is the father of all the bird-refuges in the United States. His lectures on animals have been heard everywhere, and when he approves of experiments on animals every one knows that he has good reasons for so doing.
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> The fury of the antivivisectionists at once rose to fever heat. The New York Antivivisection Society through its president, Mrs. Belais, sent out an extraordinary appeal calling him "one Ernest Harold Baynes"—almost as if one should write "one Herbert Hoover!" In a paragraph all in capitals Mrs. Belais called on all lovers of animals to help crush Miss Lane financially not only by cancelling their own subscriptions but by urging all their friends to do the same—a nationwide boycott. This extraordinary method will ensure a reaction in favor of Miss Lane because of its vindictive unfairness. It is not argument, it is persecution and is also illegal.
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> It behooves the friends of scientific research and real lovers of animals to support Miss Lane by expressing to her by mail their admiration of her courage, and by adding their own names to the list of her subscribers. Her address is 381 Fourth Ave., New York, and the cost of a year's subscription is only two dollars. She has received hundreds of letters from the A.V's—many abusive. The November and succeeding issues will contain some interesting reading.
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> Mr. Baynes has also been attacked by mail and by cancellation of engagements. It is up to us to sustain so doughty a champion. He has given the antivivisectionists the hardest blow I have known in forty years. W. W. KEEN.

Annual Meeting of the American Hospital Association.—The American Hospital Association held its annual meeting at the West Baden (Ind.) Springs Hotel, September 12-16. The outstanding features of the meeting included an illustrated talk by Dr. Haven Emerson in which he set forth some interesting data regarding the Bureau of War Risk Insurance, as well as referring to some faulty methods of procedure; a round table conducted by Dr. Malcolm T. MacEachern, superintendent of the Vancouver General Hospital, Vancouver, B. C., on "What Constitutes Good Service to the Patient"; a paper by Dr. Charles S. Woods, superintendent of the Methodist Episcopal Hospital, Indianapolis, on "The Development of Good Professional Work in the Hospital"; an address by Dr. Franklin Martin on the work with hospitals by the American College of Surgeons, and a paper by Dr. Franklin R. Nuzum, medical director of the Santa Barbara (Calif.) College Hospital, on "A Method for Increasing Medical Efficiency Within the Hospital." There were also section programs on dispensaries, hospital construction, administration of hospitals, social service, nursing and dietetics. A special committee on blanks used in hospitals presented a valuable report showing forms of 160 suggestive and helpful blanks. The president for the next year is Dr. George O'Hanlon, superintendent, Bellevue Hospital, New York; the president elect, Mr. Asa S. Bacon, superintendent, Presbyterian Hospital, Chicago; first vice president, Dr. A. C. Bachmeyer, superintendent, Cincinnati General Hospital; second vice president, Dr. Harold W. Hersey, superintendent, New Haven Hospital, and third vice president, Miss Harriet Hartry, superintendent, St. Barnabas Hospital, Minneapolis. Trustees elected were Mr. Richard P. Borden of the Union Hospital, Fall River, Mass., and Mr. Daniel D. Test, superintendent, Pennsylvania Hospital, Philadelphia. Approximately a thousand delegates were in attendance.

American Conference on Hospital Service.—A meeting of the American Conference on Hospital Service was held, Thursday, Sept. 15, 1921, at West Baden, Ind., in connection with the annual meeting of the American Hospital Association. At a joint session of the conference with the hospital

association, held in the forenoon, an address was given by Dr. Franklin Martin relative to the standardization of hospitals by the American College of Surgeons. This was followed by a paper by Franklin R. Nuzum, medical director of the Santa Barbara (Calif.) Cottage Hospital, on "A Method for Increasing Medical Efficiency Within the Hospital." At the business session of the conference in the afternoon, reports were given as follows: The Committee on Nursing, during 1920, carried on a special field study made possible by the gift of $1,000 from the National Organization of Public Health Nursing. Information was obtained showing that the number of training schools during various decades increased from fourteen organized between 1872 and 1880 to 446 organized between 1901 and 1910. Since then there has been a decrease, as only 286 were organized between 1911 and 1920. Information collected shows, also, that the number of nurses graduating each year increased from 9,573 in 1916 to 11,972 in 1920. Incomplete returns for 1921 indicate a sharp decline in the numbers. A report of the Hospital Library and Service Bureau indicates not only a greatly increased quantity of books and pamphlets containing information relating to hospitals but also a rapidly increasing demand for such information. More than 700 books and 1,200 pamphlets on subjects relating to various hospital problems have been collected as well as architects' drawings and plans of 300 hospitals, nurses' homes, and allied institutions. The information collected at the library has to do with, first, the hospital field, which deals with determining the needs of hospitals or dispensaries; community surveys; finances; types of hospitals, etc. The second group of data deals with the construction of hospitals, while a third group deals with problems relating to the operation of hospitals. Other groups included in the hospital field are such as general hospital associations, professional associations, public health and governmental activities. Other groups deal with vital statistics, insurance reports, training of hospital personnel and hospital literature. A series of folders has been prepared containing information collected on a variety of subjects. These folders are lent to any one needing the information for three weeks' time. For example, one folder deals with community hospitals and includes articles clipped from hospital journals relating to the organization and planning of such hospitals, as well as descriptive articles, a copy of a constitution and by-laws for a community hospital, record forms, and other printed material required in the operation of such institutions. The folder also contains a reference list of additional material published in magazine or book form, which cannot be sent out of the library. This library has been organized under the auspices of fifteen national organizations which are working for the betterment of hospitals and hospital service, and is also financed by these organizations in addition to a generous gift received from the Rockefeller Foundation. The Hospital Library and Service Bureau is located at 22 East Ontario Street, Chicago.

LATIN AMERICA

Cuban Medical Congress.—The Fifth National Medical Congress of Cuba is to convene, Dec. 11-17, 1921, and elaborate preparations are being made for it. Prof. J. A. Presno, founder and director of the *Revista de Medicina y Cirugia*, is to preside, and Dr. Diaz Albertini and Dr. F. M. Fernández, Calle del Prado 105, are vice president and secretary. These national medical congresses are held every five years, and this one had been appointed for December, 1920, but was postponed to this year.

Personal.—Dr. R. Ascanio, director of the Hospital Civil of Havana, has returned to Cuba after spending several weeks in Chicago where he visited hospitals and clinics.—— Drs. M. J. Luque of Tunja and N. Torres of Sogamoso, Colombia, have left for Paris where they intend to take postgraduate courses.——Dr. J. M. Penichet of Havana and Dr. P. Sotorrios of Cienfuegos have returned to their home towns after spending some time in New York City.——Drs. F. J. Marulanda and J. Cajiao of Bogota, Colombia, have arrived in New York.

New Public Health Officers in Cuba.—Dr. J. Guiteras, secretary of public health, has just appointed Drs. E. Martinez and C. E. Finlay directors of public health and public assistance, respectively. Dr. Finlay is the son of the discoverer of the mosquito transmission theory of yellow fever. Dr. Martinez will occupy the position held by Dr. Guiteras previous to his appointment as secretary of public health. Drs. A. Galarreta and Sáez will remain as chief clerks of the above mentioned bureaus. Dr. A. Cueto, who for a long time has been secretary of the commission on infectious diseases, has been appointed chief clerk of the public health department.

Anniversary Number of the "Revista de Medicina y Cirugia" of Havana.—The twenty-fifth anniversary of the founding of this Havana exchange is a volume of 248 pages, profusely illustrated. The history of the *Revista* is the history of medicine and progress in Cuba, and an oversight of medical institutions in the island, and of the various medical congresses held in Cuba, the four national congresses since the first in 1888, the Third Pan-American Medical in 1901, the International Sanitary Conference in 1902, and the 1905 meeting of the American Public Health Association. The quarantine, public health service, charitable institutions, etc., of Cuba are described with illustrations, the whole forming a memorial worthy of this high grade journal, and valuable as a work of reference.

FOREIGN

Personal.—Prof. S. Kato, Keio University Medical College, Japan, will start on an inspection tour, September 30. After visiting colleges and laboratories in Germany, Austria, Denmark, Belgium, France and England, he expects to return to Japan by way of America.

International Otology Congress.—At the Ninth International Otologic Congress held at Boston in 1912 it was decided to hold the next meeting in Germany. The committee of organization, however, has selected Paris as the place for the next congress, and July, 1922, as the date.

Plague Prevention in Manchuria.—According to official bulletins, the plague epidemic, which has prevailed in South Manchuria for nine months, with nearly 8,000 deaths, has almost disappeared. The effective campaign was due to the scientific measures employed, in the carrying out of which the Japanese and Chinese authorities cooperated.

Memorial to Dr. Sato.—In memory of the late Dr. Susumu Sato, who devoted his life to the progress of medical science in Japan, a laboratory will be constructed at a cost of 300,000 yen, for the Yuntendo Hospital, the largest private hospital in Japan. Courses in every branch of medical science will be offered under the presidency of Dr. Susumu Nukada, and clinics will also be held in the institution.

Foundation of Society for Study of Heredity.—The *Münchener medizinische Wochenschrift* mentions the recent foundation at Berlin of the German Society for Vererbungswissenschaft with quite a large membership. The dues for foreign members are 5 Swiss francs. The secretary is Dr. H. Nachtsheim, Invalidenstrasse 42, Berlin, N. The next meeting is to be held at Vienna in the later half of September, 1922. Dr. von Wettstein of Vienna was elected president.

Three Medical Days at Brussels.—A series of nine lectures has been organized for Nov. 13-15, 1921, at Brussels. Each lecturer is to present the principal recent innovations in his specialty. The list includes Bordet, Henrijean, Sand and Stiénon in addition to J. L. Faure of Paris and others. Medical and surgical moving pictures and demonstrations of patients are also planned. Dr. Beckers, 30 rue Archimède, Brussels, is the secretary of the organization planning the course.

International Congress for Comparative Pathology.—It has been finally decided to hold this congress, at Rome, Sept. 20, 1922, with Professor Perroncito presiding. The *Riforma Medica* of Aug. 13, 1921, gives the list of twenty subjects appointed for discussion, and communications on other subjects are invited by Professor Perroncito. His address is R. Universita di Torino. Regeneration of nerves and the present status of cancer, diseases with a filtrable virus and deficiency diseases in man and animals are the leading themes.

The German Urologic Congress.—The Fifth Congress of the German Urologic Society is to meet at Vienna, September 29, and over 100 communications have been registered. Posner of Berlin is to speak on the recent progress in examination of the urine and its import; Albrecht on hydronephrosis which is to be the main topic, the various aspects of it presented by different speakers. Other topics are extensive resection of bladder and ureter, and the roentgen rays in urology.

International Congress for Protection of Maternity.—The *Progrès médical* brings the program of the international conference to be held at Paris, July 6 to 8, 1922, under the auspices of the Ligue contre la Mortalité Infantile, to discuss the various aspects of puericulture. It is to be open to all interested in welfare work for prospective and nursing mothers and for infants and children in general. Dr.

Armand-Delille, director of the Oeuvre Grancher, rue de Tilsitt 20, Paris, is a leading member of the committee in charge.

Financial Straits of Hospitals in Germany.—The *Deutsche medizinische Wochenschrift* quotes the general secretary of the Roman Catholic hospital system in Germany to the effect that the introduction of the eight hour working day has made it necessary to employ so many more attendants that they actually outnumber the sick in some hospitals while the expenses have increased in proportion. The expense per capita is now in some institutions over twenty times what it was before the war. The Hamburg Harbor Hospital has 187 attendants for 184 sick inmates. There are at present 2,039 hospitals and sanatoriums in Germany in charge of religious orders, and only 877 of them are public institutions.

International Antialcohol Congress.—The Sixteenth International Antialcohol Congress was announced for Aug. 22-27, 1921, to convene at Lausanne, Switzerland, the president of the Swiss Republic to preside. The effect of prohibition in the United States, in Finland, and in Iceland was the main topic for discussion, but reports were also to be presented among others on the nationalization of the sale of liquor in Carlisle; the effect on consumption of alcohol of the internal revenue taxes; effect of the restrictions adopted in Great Britain and in Germany during the war; organization of scientific research on the effects of alcohol; nonalcoholic utilization of fruits, and training officials and others for the campaign against alcohol.

Hygiene Expositions.—The *hygienemesse* recently held at Leipzig arranged for talks every hour by some physician, with personally conducted tours through the exhibits provided by the Dresden Hygiene Museum, the National Board for Testing Artificial Limbs, and the Kaiser Wilhelms Academy at Berlin, and others. Kölliker described the recent progress in prostheses. Rosenthal's address was on what those disabled by war or industrial accident should know of the prospects of improvement offered by surgery. Thiele spoke on care of the health in different occupations, in addition to speakers on prevention of tuberculosis, etc. Amsterdam is repeating this year the successful hygiene exposition held at the Hague in 1920. It is to continue through October and have eighteen sections, including one on sports, on adulteration of foods, and on the combating of quackery.

Deaths in Other Countries

H. E. Cuff, O.B.E., principal medical officer to the Metropolitan Asylums Board, London, was drowned while attempting to save his two daughters, when bathing in a rough sea at Burnham Overy, Norfolk, aged 57.——Col. **W. H. Bull,** honorary surgeon to King George V of England.——**J. N. Nicoll,** former surgeon to the Royal Hospital for Sick Children, Glasgow, N. B., one of the first in the country to describe and operate on congenital hypertrophic stenosis of the pylorus, and author of many valuable articles in the *British Medical Journal*, aged 57.——**S. Sato,** graduate of the University of Berlin and the first Japanese scholar to receive a degree from a foreign university; chief of Tokyo Military Hospital; professor of surgery, Imperial University of Tokyo, and surgeon-general in the army, died, July 26, aged 77.——Dr. **Alvaro Ramos,** a leading surgeon of Rio de Janeiro and member of the editorial staff of the *Brazil Medico*. Resolutions of condolence were adopted in the chamber of deputies and in the municipal council.——Dr. **C. Krafft** of Lausanne, Switzerland, president of the Société Médicale de la Suisse Romande.——Dr. **M. Armona,** surgeon and chief of the public health service at Zulueta, Cuba.——Dr. **J. Martinez Osuna,** commander of the medical corps of the Cuban army.——Dr. **A. Avendaño y Silva** of Pinar del Rio, Cuba.——Dr. **Pantaleon Venero,** bacteriologist of the national public health service of Cuba.

CORRECTION

Increase in Typhoid Fever.—Dr. C. Hampson Jones, commissioner of health, Baltimore, writes that the item in THE JOURNAL, September 10, page 869, relative to typhoid fever in Maryland is in error. The statement should have been that in August there were forty cases of typhoid fever as compared with forty-four in the same month in 1920.

Treatment of Syphilis.—On page 968 of THE JOURNAL, September 17, in the abstract of an article by W. H. Guy, entitled "Valuable Method in the Treatment of Syphilis," published in the *American Journal of Syphilis*, the dose of arsphenamin is given as "1 gm. for each 30 poumds of body weight on each of three successive days." This is an error. It should read 0.1 gm.

Government Services

Assignment of Army Officers

Changes in the assignment of officers of the Medical Corps of the Army have been announced as follows: Major Thaddeus S. Troy, from Camp Jackson, S. C., to Walter Reed General Hospital; Capt. Alexander Berkowitz, from Camp Meade to Walter Reed General Hospital; Col. Powell C. Fauntleroy, from Fort McPherson, Ga., to Walter Reed General Hospital; Major Robert C. McDonald, from Fort McPherson, Ga., to duty in the Office of the Surgeon General of the Army; Major Arthur N. Tasker, from Walter Reed General Hospital to the Army Medical School; Lieut.-Col. David S. Fairchild, from Washington, D. C., to Panama Canal Zone on the staff of the Panama Canal Division; Col. Deane C. Howard, from special duty at the War Department to Manila for duty as Philippine departmental surgeon.

Surgeon-General Cumming Visits Public Health Service Hospital

A tour of inspection of government hospitals in the West is being made by Surgeon-General Cumming of the U. S. Public Health Service. During the next two weeks he will visit the Speedway Hospital at Chicago and the U. S. Public Health hospitals at Waukesha, Wis.; Walla Walla, Wash.; Boise, Ida.; Portland, Ore.; Seattle; San Francisco; San Diego, Calif.; Whipple Barracks, Ariz., and Fort Stanton and Fort Bayard, N. M.

Conference on Child Hygiene

A conference of state directors of child hygiene, now cooperating with the U. S. Public Health Service, is to be held, September 27, at the headquarters of the Surgeon-General in Washington, D. C. The purpose of the meeting is to devise plans for more effective cooperation between the states and the Public Health Service in the field of child hygiene. Among other matters to be presented at this meeting will be a report by Surg. Talliaferro Clark, who has returned from the International Child Health Conference, recently held in London, England.

Report on Medical Reserve Officers Training Camp

A report on the Reserve Officers Training Corps camp for the Medical Department, held at Carlisle Barracks, Pa., from June 6 to July 18, made public by Surgeon-General Ireland, indicates that the camp was successful. The attendance consisted of representations from each of the active units of the Medical Reserve Corps, namely, Rush, Johns Hopkins, Jefferson, University of Minnesota and Washington University medical colleges. The camp was carried on in connection with the summer course of the Medical Field Service School, in attendance on which were more than eighty student medical officers, recently graduated from the Army Medical School at Washington, D. C. The features of the instruction were intensive courses in military art and history, sanitary tactics, hygiene, administration, and training of enlisted men. In addition to the routine teaching by a specially selected staff of teachers, a number of prominent educators from the Regular and Reserve Corps as extramural lecturers on selected subjects assisted in the instruction. Among such officers were Brig.-Gen. R. E. Noble, Surgeon-General's Library; Col. Alexander Stark, Surgeon, Third Corps Area; Lieut.-Col. Fielding H. Garrison, Army Medical Museum; Prof. W. B. Cannon, Harvard Medical College; Lieut.-Col. M. A. W. Shockley, General Service Schools; Major A. G. Love, Statistician, Surgeon-General's Office, and Major A. P. Clark, Surgeon-General's Office. Col. P. M. Ashburn, commandant of the Medical Field Service School, was camp commander, and Lieut.-Col. J. L. Bevans, senior instructor of the Medical Field Service School, was senior instructor of the camp.

Reassignment of Medical Officers

A general redistribution of the organizations of the Army and reduction in its strength according to the law recently passed by Congress will result in a reassignment of officers of the Medical Corps. The Secretary of War has announced also reductions in all branches of the service. The number of enlisted personnel to be included in the Medical Corps of the Army has been fixed at 8,591.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 22, 1921.

Outbreak of Smallpox

As pointed out in previous letters to The Journal, the relaxation of the vaccination act, which allows exemption simply on the declaration of the parent that he has a conscientious objection to vaccination, has led to an enormous increase in the number of unvaccinated persons and greatly magnified the risk of an epidemic of smallpox. Twenty years ago, 71 per cent. of the infants born in England and Wales were vaccinated; in 1919 the ratio had fallen to a little over 40 per cent. Health authorities are consequently apprehensive of an outbreak of smallpox. So far, none of any magnitude has occurred. Scattered cases are constantly occurring. In the present year they amount to about 100 throughout England. At last an outbreak of smallpox has occurred, but not of any magnitude. At Nottingham, fifty-six persons have been attacked since the beginning of June. Of these, forty-four were unvaccinated. So far there have been no deaths. A point of some importance is that a large number of men who joined the army and also of women workers in connection with it have been revaccinated. The local health authorities are taking every precaution, including extensive vaccination.

Tuberculosis Notification

The provision of treatment for tuberculosis as a benefit under national health insurance acts has been brought to an end. Insured persons continue to receive domiciliary treatment from their insurance physicians, but provision of residential treatment for insured, as well as for noninsured, persons now rests with the local authorities. During the year, capital grants of $1,378,000 were paid, and loans of $1,891,600 were sanctioned in aid of the provision of sanatoriums and other institutions for the treatment of tuberculosis; approval was given to institutions containing 1,571 additional beds, 1,009 provided by local authorities and 562 by voluntary bodies; over $4,500,000 was paid as grants in aid of the cost of maintaining institutions; the number of cases of tuberculosis notified for the first time was 73,372, made up of 57,844 pulmonary cases and 15,488 nonpulmonary cases. The deaths from this disease, which in 1918 reached the figure 58,073, were (in the calendar year 1920) 42,545, pulmonary tuberculosis accounting for 33,469 of these deaths. Writing of the treatment of tuberculous ex-service men, the report says: "The special arrangements administered by insurance committees for the preferential provision of residential treatment for tuberculous ex-service men have continued, pending the institution of revised arrangements, when the work will pass to the county and county borough councils. The number of such men receiving residential treatment was 3,559, as against 3,780 in the previous year. The total number of cases of tuberculous ex-service men was 49,990, of whom 35,513 had received treatment in residential institutions. Certain changes affecting tuberculous ex-service men in other respects took place during the year. In June, 1920, special conditions of pension were introduced for men suffering from tuberculosis attributable to or aggravated by service who completed a course of extended treatment combined with training in a training colony, following on a period of treatment in a sanatorium, or who completed a course of treatment in a sanatorium, and were not then recommended for a course of extended treatment combined with training in a training colony. Pension is awarded in such cases at the rate of 100 per cent. for the first six months from the date of the completion of the period of training or of sanatorium treatment, and at a rate of not less than 50 per cent. during the following two years. The awards carry the condition that the pensioner, when called on, presents himself to the tuberculosis officer for examination, in order that the ministry of pensions may be informed as to his condition from time to time, and as to the necessity for any further treatment." The compulsory notification of cases of pulmonary tuberculosis has been in operation in England and Wales since Jan. 1, 1912, and of all cases of tuberculosis since Feb. 1, 1913. The following table shows the total number of primary notifications of tuberculosis during each of the last six years:

	Primary Notifications	
Year	Pulmonary	Nonpulmonary
1915	68,309	22,283
1916	68,109	22,799
1917	68,801	20,884
1918	71,631	18,942
1919	61,154	16,357
1920	57,844	15,488

A considerable decrease in the number of deaths from tuberculosis in England and Wales occurred in the year 1919, as compared with previous years, and a further decrease in the year 1920. The following table shows the number of deaths recorded from tuberculosis during each of the last six years:

	Deaths from Tuberculosis	
Year	Pulmonary	Nonpulmonary
1915	41,676	12,619
1916	41,545	12,313
1917	43,113	12,821
1918	46,077	11,996
1919	36,662	9,650
1920	33,469	9,076

PARIS

(From Our Regular Correspondent)

Aug. 26, 1921.

Twenty-Fifth Congress of Alienists and Neurologists

The twenty-fifth congress of alienists and neurologists of France and French-speaking nations was held in Luxemburg, August 1-6, under the presidency of Dr. Buffet of Ettelbruck and Dr. Meige of Paris. Among the questions that were discussed, two are of general interest: (1) traumatic epilepsy, and (2) simulation of mental diseases.

TRAUMATIC EPILEPSY

According to the paper by Dr. Béhague of Paris, epilepsy may be caused by penetrating skull wounds (projectiles, shell fragments, fracture of base of skull), or by nonpenetrating traumatisms (concussion, cutaneous scalp wounds, fracture of outer table of skull). Penetrating traumatisms entail encephalic or meningeal cicatrices—localized, gross and macroscopically visible. Nonperforating traumatisms, wherever they may be, exert an effect and occasion disseminated encephalic cicatrices—small, microscopically visible. Following a penetrating or nonpenetrating traumatism of the skull, the development of epilepsy is induced by several causes. The physiologic and pathologic condition of the wounded is of great importance. Alcoholism and syphilis favor the development of epilepsy, whereas age, intensity of subjective affections and duration of loss of consciousness after the accident exert no particular influence. Inactive types of epilepsy existing before a traumatism are always much aggravated by the injury. Certain areas of the brain are more epileptogenic after injury than others. Thus injuries to parietal, frontal, occipital and temporal lobes are responsible, respectively, for half, a quarter, an eighth and a sixteenth of the cases of traumatic epilepsy. Lesions of the cerebellum do not seem to be epileptogenic, while injuries of the temporal, occipital and orbital lobes are almost sure to be. The danger of epilepsy is in direct relation to the extent of the cerebral injury and of the resulting cicatrix.

Large, slow, septic and deeply penetrating projectiles are, in this respect, more dangerous than others. Intracerebral projectiles induce epilepsy more often when they are deeply seated and especially when surgical extraction has been attempted, thus creating more severe encephalic injury. These remarks concern only "lasting epilepsy" (*épilepsie durable*), comparable in its evolution to genuine epilepsy and due to a chronic cicatricial lesion. It differs from acute epilepsy, which develops sometimes early and sometimes late and is referable to an intracranial lesion in evolution. A little more than 12 per cent. of skull wounds give rise to this type of lasting epilepsy; it takes on a jacksonian form only in a third of the cases, while two thirds of the attacks are generalized. As regards treatment, if it is acute epilepsy, the cause, when superficial and localized, can be removed surgically; if it is diffuse epilepsy, treatment is symptomatic. If epilepsy is due to a nonpenetrating lesion of the skull, treatment by medication with boric acid compound or with ureids; for example, phenobarbital (luminal), is indicated. The prognosis of surgical treatment is very unfavorable. If epilepsy is caused by a penetrating lesion of the skull, ureid or bromid medication should be used; surgical treatment, as it cannot remove meningeal or encephalic cicatrices, is always contraindicated. However, if there has been no opening in the dura mater and roentgenography discloses a foreign body, a fracture of the inner table of the skull or a plastic defect, surgical removal of these causes may effect a cure of the disease.

SIMULATION OF MENTAL DISEASES

Dr. Parot of Algiers stated in his paper that simulation of mental diseases can be divided into three groups: 1. True simulation. This group must be recognized notwithstanding the contrary opinion of those who believe that only abnormal subjects feign mental troubles. The subject, fully conscious of his actions, deliberately begins to feign mental disturbances, a rôle which is certainly hard to keep up but is not beyond the resources of certain keen and enterprising individuals who may have a great interest in protecting themselves and accomplishing their purpose. Studied action and premeditation are in evidence in certain cases, and flagrant guilt or confessions often confirm the fact that they are acting in bad faith. 2. Exaggeration or so-called sursimulation. This is the most frequent type of case. The subjects exaggerate more or less consciously real mental anomalies and pathologic tendencies which give a certain direction to their simulations. It is simply that the outward expression of these tendencies exaggerates the real condition. There are numerous varieties of *sursimulateurs*. There are the feebleminded who simulate idiocy; the depressed who affect complete apathy and make feigned attempts at suicide, and the excitable and impulsive who tire every one around them by their complaints and indulge in attacks of motor excitement whenever it suits their convenience. 3. Perseveration or after-simulation consists in simulating a condition or trouble after it has disappeared; for example, stupor, surdimutism, cataleptoid attitudes and rhythmic gestures. The task of the expert becomes often very arduous when confronted by such cases of simulation. He will naturally make a careful inquiry into the personal and family history of the subject; will look for significant hereditary and personal antecedents; will analyze the origin of the troubles and ferret out the motives back of simulation. The direct examination will sometimes be carried on for some time before the simulator is made to contradict himself. Contradictory statements, incongruities and exaggerations will lead up to a correct diagnosis. A study of the gaze will be of great help, as the eye often rebels at the hypocrisy of simulation. Does simulation presuppose lessened accountability of the subject? Those who hold that simulation constitutes in itself an extenuating circumstance seem to be going too far. Professor Dupré of Paris believes that simulators are far from being abnormal, and that real simulation is very frequent. For example, it would also be well to study simulation of health by psychopaths who want to conceal their true mental condition in order to effect their release from the hospital. Dr. Anglade of Bordeaux believes that we should be somewhat skeptical as regards the affirmations of subjects who pretend to have simulated insanity. He reported having observed several soldiers who boasted of having been sent back home for feigned mental troubles, whereas they really were insane. Dr. Chavigny of Strasbourg emphasized that for the study of simulation a trained and permanent personnel is needed, and regretted that in military formations nurses are constantly changed and often replaced by incompetents. It is desirable that these services be permanently organized. Finally, Dr. Courbon of Stephansfeld reported an interesting communication on the simulation of diseases, with the view to securing pensions for disability, by subjects in Alsace, where nearly all simulators come from the same region and present a peculiar physical appearance —different complexion and different costumes, habits and distinctive qualities of mind from people of other regions. These characteristics may be due to the fact that these people are descendants of some immigrated Celtic tribe or of the mercenaries of Deux-Ponts. Might not their disability claims be an ancestral survival of the mentality of the mercenaries?

Use of Motion Pictures in Demonstrating Neurologic Cases

Dr. Long of Geneva, in exhibiting certain films pertaining to neurologic cases (athetosis, Thomsen's disease, Charcot-Marie atrophy, syphilis, achondroplasia, etc.) from the Comandon collection at Paris, demonstrated the services that cinematography may render in medical instruction, either for comparison of various types of clinical diseases or for the exemplification of rare cases.

BELGIUM

(*From Our Regular Correspondent*)

LIÉGE, Aug. 17, 1921.

Nontuberculous Chronic Vesiculitis

The Belgian Society of Urology, at its regular annual meeting, to which many prominent French urologists were invited, listened to a report by Dr. François, who has made a special study of chronic vesiculitis. After a review of the anatomic, clinical and symptomatic aspects of vesiculitis, the writer stated that the diagnosis of nontuberculous, chronic vesiculitis is made chiefly by rectal palpation and the evacuation of the vesicles and analysis of the fluid contents. Cystoscopy is somewhat useful in vesical reactions secondary to vesiculitis. Urethroscopy, examination of the permeability of the ejaculatory ducts and vesiculography may also furnish interesting information. Conservative treatment consists of massage, rectal irrigations and catheterization of the ejaculatory ducts. If operative treatment is indicated, vasotomy, vesiculotomy and vesiculectomy may be considered. From the standpoint of results, we may study the value of these various operations in cases of vesiculitis with predominant urinary, genitomental and articular symptoms. Urinary group: It appears that vesiculotomy or partial vesiculectomy may frequently cure irritability of the bladder and recurrent cystitis. Genital group: Results that have been announced do not seem to justify operative intervention. Nervous and neurasthenic group: Fuller and Cunningham state that nervous troubles accompanying chronic vesiculitis rarely justify vesiculectomy. Rheumatic group: Intervention seems to give good results in cases of postgonorrheal, chronic vesiculitis.

In other forms of chronic rheumatism excellent and prompt results can be obtained, but recurrence seems to be frequent.

Following this communication, Dr. Marin of Paris decried the abuse of operative intervention as often carried out in certain countries for the cure of cases of vesiculitis. During his consultation hours in the outpatient department of the Hôpital Lariboisière, about 90,000 patients present themselves each year, 60,000 of whom are suffering from urethritis. For the last three years he has reviewed all cases of vesiculitis and has been obliged to perform surgical operations in only six cases.

A Universities Bureau for the Advancement of Learning

The purpose of the Fondation universitaire, which was established by law, July 6, 1920, is the advancement of science and learning: (1) by granting to young Belgians who are gifted but are without financial resources loans that will allow them to take up university studies; (2) by granting financial aid to scientists and to young men who are planning to teach higher subjects or to undertake scientific researches, and (3) by encouraging scientific relations between Belgium and other countries. With the last mentioned aim in view, the foundation will aid physicians engaged in medical instruction in foreign countries. It will keep in close touch with the Association pour le développement des relations médicales de la faculté de médecine de Paris, the Office national des universités françaises, the Universities Bureau of the British Empire, the American University Union and the Junta para ampliación de estudios de Madrid.

A New Procedure for the Plastic Reconstruction of the Urethra

At a recent session of the Royal Academy of Medicine of Belgium, Professor Willems referred to the various means (cutaneous grafts, segments of veins, strips of vaginal mucosa, the appendix, segments of animal arteries) that have been successively used to reconstruct a damaged urethral canal. He has of late resorted to a simple graft of fascia lata taken from the subject. Willems has waited more than two years before publishing this observation. At the present time, the stream of urine in the subject so operated on is normal in size and force, the perineum is supple and the urethra has not undergone any secondary narrowing. The result may thus be considered as final. As in every urethral graft, the diversion of the urine by a suprapubic incision seems to have been an excellent aid. It also appears extremely important to give to the transplantation a well vascularized bed by removing all the cicatricial tissue from the operative area.

BERLIN

(From Our Regular Correspondent)

Aug. 24, 1921.

The Decadence of Civilized Nations in the Light of Biologic Research

In Germany, and possibly also in America and in other countries as well, a book by Spengler, professor of the history of civilization, at the University of Munich, entitled: "Der Untergang des Abendlandes" (The Decadence of the Occident), has created a great sensation. By means of many profound learned deductions, and more particularly by the use of mathematical findings, he has endeavored to demonstrate that the civilized and cultured peoples of the occident have entered on a period of decadence similar to that which overtook the Assyrians, the Egyptians, the Greeks and the Romans, and fixes the year 2000 as the approximate date that will witness their downfall. He argues that, just as every human being is doomed to die, so also every people has but a limited existence. In refutation of Spengler's views, a large number of works by the historians and philosophers of Germany have been published. A discussion of their contents by an expert biologist presented, therefore, special interest, for which reason a recent lecture by Professor Baur, the director of the Institute for Hereditary Science at the agricultural college in Berlin, entitled: "The Decadence of Civilized Nations in the Light of Biologic Research," has attracted considerable attention. In order to answer, with any degree of authority, the question whether the downfall of all cultured peoples is an unconditional law of nature, we must first solve the question as to what are the inherent causes of decadence per se. Without doubt, in former epochs of history, when civilized peoples reached a certain stage of culture, changes in racial characteristics, which denoted deterioration, became manifest. There are two main causes for degeneration. In the first place, there are the so-called mutations. Certain inferior qualities reappear. In the case of wild animals, such degenerative qualities are soon eradicated; for in the struggle for existence these types are unable to maintain themselves. With such animals as have been domesticated the case is quite different. Here we find a very great differentiation of types (to mention only the numerous breeds of dogs and cattle), whereas among the corresponding wild animals comparatively few and more uniform types are found. It is doubtless true that mutation occurs just as frequently among wild animals as among domesticated, but as the result of natural selection inferiors are soon eliminated. Also among less civilized peoples—hunting and pastoral tribes—individuals that present a lessened resistance are soon eradicated. No doubt during the stone age such a sifting and purging process was going on by means of natural selection. In the present stage of civilization such a process of selection has ceased to operate. The most wretched creatures, many of whom, in fact, are scarcely capable of living, are preserved by means of medical science and skill until they reach the age at which they can propagate. Professor Baur pointed out that, owing to the aid of physicians, the ability of women to bear and to nurse children had decreased; namely, because natural selection is no longer operative. Among primitive peoples, women who bore children with great difficulty usually perished and thus could not transmit their defective qualities to future generations. Among civilized peoples the freaks and malformations are preserved and perpetuate themselves. Often a certain hereditary malformation is covered over and becomes "latent."

Aside from mutation, another factor that exerts a degenerative effect on racial qualities is that no civilized people is of uniform origin, being a composite of various racial types. Even negro blood is not lacking among some of the civilized peoples of Europe. Mixed races retain the qualities of the primitive peoples of which they are composed, which leads to a wide differentiation. Professor Baur explained in a few words the mendelian law of inheritance. He showed how by crossing two breeds of rabbits with three different characteristics eight different combinations were possible. The more distinguishing characteristics there are in the progenitors, the more polymorphean will be the progeny resulting from such unions. If there are only ten distinguishing qualities in the progenitors, 1,024 different combinations are possible in two breeds otherwise alike. Among the different types of men there are hundreds of differences, which explains the fact that there are not two human beings entirely alike. It may, however, easily happen that certain embodiments are perpetuated less readily than the average, for which reason they may gradually disappear. An artificial depression of the number of births will hasten this process. It may be noted, however, not only that the upper classes restrict the number of births but that the tendency is observable also among the ranks of the skilled workmen

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and even among unskilled laborers. Even in ancient Rome attempts were made to combat artificial infertility, but premiums for large families did not accomplish any more than they do today in France. The ancient Roman people had, at the time of the emperors, almost disappeared. It was only by the influx of slaves and the rise of the freedman class that Rome was able to maintain itself. With no slight degree of scorn the true Roman designated these as *proletarii* (those who produce proles or offspring). Through the immigration of inferior types from eastern Europe and northern Africa, Roman culture and civilization were preserved outwardly for a few generations longer. Similar phenomena may be noted today in the United States, to which there has been a strong immigration for many years. If those classes that are distinguished by mental and other qualities limit the number of children born to them, the number of persons who by virtue of their superior mentality are able to become leaders will naturally gradually be diminished. But these are not the only two causes that bring about a degeneration of civilized peoples. Another contributing cause is the depopulation of the rural districts. Persons who are above the average in ability naturally gravitate toward the big cities with their frightful housing conditions. Alcoholism also plays a part. But are these harmful selective processes unavoidable? Is it not possible to devise a type of civilization that would eliminate these harmful manifestations? Professor Baur holds the view that we can attain to a higher inner culture in which these harmful secondary manifestations are suppressed. To be sure, it is much easier to make definite demands and proposals than it is to carry them out. But a great deal can be accomplished if we adopt such measures as will prevent standards of living from being lowered by natural increases in the family. Tax revision has hitherto taken too little account of the number of children in the family. Race suicide among the leading classes seems sometimes to be actually abetted by tax legislation. In fixing the salaries of public officials, the number of children in the family should be given much more consideration than is the case. We are inclined to forget that children themselves constitute the most important tax contribution. The speaker in conclusion emphasized that cultural decay is not the unavoidable fate of every people. The worse the economic condition of a people is, the more sharply the process of natural selection begins again to operate. Just as prosperity and luxury often hasten decadence or may even bring it about, want and deprivation may make a people stronger.

Establishment of a Professorial Chair for Sexual Hygiene and Sex Education

Sanitätsrat S. Jessner, the Königsberger dermatologist, has been appointed the first incumbent of the new professorial chair recently created at the University of Königsberg.

BUDAPEST

(From Our Regular Correspondent)

Aug. 15, 1921.

Plight of Medical Students

The peace of Trianon has created a curious situation for medical students. Nominally, before the war terminated, Hungary had two universities with medical faculties, one at Budapest, the capital, and the other at Kolozsvar, the capital of Transylvania. While the Budapest University counted from 4,000 to 4,500 medical students, the Kolozsvar University was modestly numbering between 400 and 500 students. This was due to the fact that the Budapest medical faculty had the best possible equipment, its members, in the last years before the outbreak of the war, having been sent to Vienna, Berlin, Paris, London and New York, to study medical institutions and to copy what was best. The government did not spare money, and the clinics of the Budapest University inspire the greatest enthusiasm among those who see them. Foreign visitors to the 1909 International Medical Congress held in Budapest retain a vivid memory of the clinics of Budapest; in fact, numerous English and American physicians later came to Budapest for graduate medical study. Even Transylvanian students preferred to go to Budapest, not excepting students from Kolozsvar itself. These Transylvanian students, having begun their study in Budapest and having attended four or four and a half years, finished their study in Budapest when Transylvania was torn away from Hungary. When the Roumanian government took over the Kolozsvar University, they employed Roumanian professors, and the language of the university was changed to Roumanian, which was unknown to most of the Transylvanian students. As Transylvania is a large territory, the number of medical students approaching the termination of their studies amounted to about 1,000. These students, not speaking the Roumanian language, preferred to finish their studies in Budapest and pass their final examination in the language which they know. However, when they received their diploma in Budapest and came home to Transylvania, they received the surprising news that they were not allowed to practice in their own land with Hungarian diplomas unless they passed the final examination in Roumanian. This would entail new work for the students and it would mean at least a year's loss to them. This regulation hurt them the more, in that the whole administration of Transylvania has been left unchanged as it was under Hungarian rule. The newly licensed physicians with Budapest diplomas have sent a memorandum to the Bucharest minister of public instruction, who will probably make an exception in the case of those physicians who attended the Budapest University for the greater part of their study, and will withdraw the regulation relating to the passing of the final examination.

A Cry from Russia for Help

The radio station at Bucharest received a message from Moscow that, in addition to the famine, a terrible epidemic is raging in Russia. In seacoast provinces, vast numbers of cholera cases have been reported. In Odessa and the Ukraine and in villages along the Dniester River the situation is similar. To this message was added an appeal by Russian physicians for help, couched in these words:

"Listen to our despairing appeal, which is not dictated by any political feeling. In that territory which fate has designed for us as the site of our activity, hundreds of thousands of men are in danger, and we are virtually powerless. The Asiatic cholera takes more and more shocking measures from day to day, and its consequences, if you do not help us, will be felt over the whole of Europe. The epidemic is caused by the undernutrition of the people, aggravated by the insufferable heat. We medical men are unable to control the latter, but it is our duty to do everything we can to localize and eventually to overcome the epidemic. To this end we need serums, instruments and antiseptics, of which we are very short. In the name of humanity and the solidarity of the medical sciences we appeal to you to throw all your efforts into the balance with your respective governments, that they shall send help without the least delay. As you know, in present conditions, the delay of twenty-four hours means the death of hundreds of miserable women and children who are not responsible for those political walls which stand between us so rigorously. Therefore, help us immediately, because it is late even now. May heaven preserve Europe from the danger that would result should Russia's millions be mastered by the epidemic."

The Bucharest government immediately sent a great quantity of the necessary appliances and drugs, and took precautions against the spread of cholera across the border.

Marriages

Daniel Parker Card, Major, M. C., U. S. Army, West Point, N. Y., to Miss Rosa Whiting Parran of Baltimore, at Monterey, Pa., September 6.

Raymond Evan Davis, Ladd, Ill., to Miss Cora Imelda Bradley of East Ottawa, Ill., in Chicago, September 3.

Charles A. McDonald, Sebeka, Minn., to Miss Martha E. Erickson, St. Paul, at Norway, Mich., July 28.

Chester Warren Howard, Crawfordsville, Ind., to Miss LaVerna Schultz of Newton, Ind., August 27.

Frederick W. Sullivan, Jr., Ann Arbor, Mich., to Miss Lois Clark of Exeter, N. H., September 6.

Charles E. Fenwick, Niagara Falls, Ont., to Miss Jacqueline McCullough, in Toronto, recently.

Frank Alexander Evans to Miss Elizabeth Fischer, both of Baltimore, September 7.

Deaths

William Martin Perkins ✱ New Orleans; Tulane University of Louisiana, New Orleans, 1897; former secretary of the state board of health; specialized in surgery; member of the Southern Surgical and Gynecological Association; senior assistant demonstrator of operative surgery, Tulane University; clinical assistant to chair of general clinical surgery, New Orleans Polyclinic; visiting surgeon, Charity Hospital; lecturer on surgery, New Orleans Training School for Nurses; president of the Alumni Association of Tulane University; died, August 21, from cerebral hemorrhage, aged 48.

John J. Marker ✱ Eloise, Mich.; University of Michigan, Ann Arbor, 1890; superintendent of the Wayne County Insane Asylum; formerly assistant and superintendent at the Eloise Hospital for thirty-two years; assistant clinical professor of neurology and psychiatry at the Detroit College of Medicine and Surgery; member of the Detroit Society of Neurology and Psychiatry; was killed when his automobile was struck by a train, September 2, aged 58.

Ora Lee Norris, Deshler, Ohio; Detroit College of Medicine and Surgery, Detroit, 1895; member of the Ohio State Medical Association; president of the Henry County Medical Society; surgeon of the U. S. Pensions Bureau of Examining Surgeons; served as major, M. C., U. S. Army, during the World War; was killed, September 11, when his automobile was struck by an electric car.

Stephen Cooper Ayres ✱ Cincinnati; Medical College of Ohio, Cincinnati, 1864; former lecturer at the Cincinnati Hospital; emeritus professor of ophthalmology, Medical College of Ohio (University of Cincinnati), 1898-1910; member of the American Ophthalmological Society and the American Otological Society; Civil War veteran; died, September 1, aged 79.

Robert Beatty Carey, Glenlock, Pa.; University of Michigan, Ann Arbor, 1871; member of the Medical Society of the State of Pennsylvania; practitioner for over fifty years; formerly on the staff of the Chester County Hospital, West Chester; school director in East Whiteland for thirty years; died, September 2, after a long illness, aged 78.

Richard Addison Powell, Johore Bahru, India; University College of Medicine, Richmond, Va., 1907; served with the British R. A. M. C., during the World War, with the rank of major; formerly on the staff of the Highsmith Hospital, Fayettesville, N. C.; until his death on the staff of the English Hospital, Johore Bahru, died, August 14, aged 37.

Charles E. Crawford, Rockford, Ill.; Hospital Medical College of Evansville (Ind.), 1884; assistant state health inspector of Illinois; previously city commissioner for eight years; member of the Illinois State Medical Society; died, August 27, at the Rockford Hospital, from nephritis, aged 66.

Walter Woodruff Parmalee ✱ Auburn, Me.; University of Vermont, Burlington, 1909; also a druggist; specialized in opithalmology, otology, laryngology and rhinology; died, September 3, following an operation for carcinoma, at the Central Maine General Hospital, Lewiston, aged 47.

✱ Indicates "Fellow" of the American Medical Association.

Edwin Jackson Graser, New Orleans; Tulane University of Louisiana, New Orleans; Tulane University of Louisiana, New Orleans, 1887; former president of the Louisiana State Medical Society; former president of the New Orleans Parish Medical Society; died, September 4, aged 58.

Charles Heister Smith, Linglestown, Pa.; University of Pennsylvania, Philadelphia, 1872; practitioner for nearly half a century; served two terms as county commissioner; former school director of Lower Paxton Township; died, August 30, from cerebral hemorrhage, aged 70.

James Robert Swanick, Saratoga Springs, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1898; captain, M. C., U. S. Army, during the late war; died, September 6, at St. Mary's Hospital, Hoboken, N. J., from ptomaine poisoning, aged 45.

Samuel T. Lipsitz ✱ St. Louis; Washington University, Medical School, St. Louis, 1906; on the staff of the St. Louis City Hospital and the Jewish Hospital; assistant professor of medicine, St. Louis University; died, September 2, from septic pneumonia, aged 35.

Demarcus Green Simmons, Hopkinsville, Ky.; Shelby Medical College, Nashville, Tenn., 1861; member of the Kentucky State Medical Association; practiced in Adairville for more than half a century; died, September 1, at the home of his daughter, aged 85.

Sherman L. Lull ✱ Waubay, S. D.; St. Joseph (Mo.) Medical College, 1892; since 1918, surgeon general, U. S. Public Health Service; director of the division of venereal diseases, South Dakota State Board of Health; died, August 29, aged 56.

George W. Smith, Henrietta, Mo.; Barnes Medical College, St. Louis, 1893; member of the Missouri State Medical Association; local surgeon for the Santa Fe and Wabash railroads; died suddenly, July 10, from cerebral hemorrhage, aged 55.

Richard Collier Coatsworth, Toronto, Can.; Trinity Medical College, Toronto, 1886; L.R.C.P., Edinburgh (Scotland); L.R.C.S., Edinburgh; L.,F.P.S., Glasgow, 1887; died recently at the Toronto General Hospital, from appendicitis, aged 65.

Cornelius M. Morford, Toledo, Iowa; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1890; mayor of Toledo, from 1907-1915; former president of the Hahnemann Medical Association; died, September 6, aged 56.

Benton Lovelady, Guthrie, Okla.; Chattanooga (Tenn.) Medical College, 1905; specialized in surgery; served in the M. C., U. S. Army, during the late war; died, August 31, following a long illness subsequent to influenza, aged 44.

Edward R. Jackson, Los Angeles; Cincinnati College of Medicine and Surgery, 1874; Hahnemann Medical College and Hospital of Philadelphia, 1881; before his retirement, a physician in Dubuque, Iowa; died, August 30, aged 73.

Marquis Richardson Chamblin, Decoto, Calif.; Jefferson Medical College, Philadelphia, 1850; University of the Pacific, San Francisco, 1860; formerly served as county physician; died, August 30, at the Masonic Home, aged 92.

William Lyon Harcourt, Brandon, Manit.; Rush Medical College, Chicago, 1871; former resident physician of the Brandon General Hospital; died recently at Los Angeles, where he had resided for five years.

B. H. McCallon, Dallas, Ore.; Vanderbilt University, Nashville, Tenn., 1880; member of the state legislature in 1905; health officer of Polk County; died suddenly, September 6, from heart disease, aged 72.

John W. Mitchell, Superior, Neb.; Detroit Medical College, 1870; Jefferson Medical College, Philadelphia, 1877; practitioner for nearly half a century; Civil War veteran; died, August 27, aged 74.

Nicholas Norman Blanchard, Brantford, Ont.; University of Toronto, Toronto, 1900; L.,R.C.S., Edinburgh, N.B.; L.,R.F.P.S., Glasgow, 1901; died recently at the Wellesley Hospital, Toronto.

Charles Wells Ray ✱ Waxahachie, Texas; Vanderbilt University, Nashville, Tenn., 1916; specialist in internal medicine; was shot and killed by a man in his office, September 6, aged 36.

Ramsey Rankin, Stratford, Ont.; McGill University, Montreal, 1914; served overseas during the World War; died recently in Montreal from injuries received in an accident, aged 32.

Timothy M. O'Rourke, Philadelphia; Medico-Chirurgical College of Philadelphia, 1911; for five years resident physi-

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cian, Medico-Chirurgical Hospital; died, September 6, aged 37.

Alexander Marcy, Sr., Riverton, N. J.; University of Pennsylvania, Philadelphia, 1861; member of the Medical Society of New Jersey; died, August 18, at Cape May, aged 84.

William Scott Dakin, Galt, Ont.; University of Toronto, 1902; former mayor of Galt; died recently from epidemic encephalitis, in the Toronto General Hospital, aged 43.

George Vickers Price, Brooklyn; New York University Medical College, New York, 1885; died, August 30, from arteriosclerosis and cerebral hemorrhage, aged 66.

Richard B. Coutant ● Tarrytown, N. Y.; Medical Department of Columbia College, New York, 1872; president of Tarrytown Hospital; died, September 13, aged 76.

Andrew Belton Gresham, Birmingham, Ala.; Birmingham Medical College, 1901; member of the Medical Association of the State of Alabama; died, July 30, aged 44.

Henry C. Buck, Friar Point, Miss. (license, Mississippi, 1882); member of the Mississippi State Medical Association; was found dead in his office, July 30, aged 72.

Herbert Griffin, Hamilton, Ont.; Victoria University, Toronto, 1878; president of the College of Physicians and Surgeons of Ontario; died recently, aged 66.

Gardo J. Questa, Brooklyn; Long Island College Hospital, Brooklyn, 1920; intern, Kings County Hospital, Brooklyn; died, August 2, at Arcade, N. Y., aged 25.

Joseph H. Peck, Cleveland; Western Reserve University, Cleveland, 1883; also a druggist; died, September 2, at his winter home, Fort Orange, Fla., aged 80.

Enoch J. Taylor, Franklin, Ga.; Southern College of Medicine and Surgery, Atlanta, 1913; was shot and died in a La Grange hospital, August 26, aged 43.

Andrew J. Ball, Quanah, Texas; Memphis Hospital Medical College, 1903; member of the State Medical Association of Texas; died, August 19, aged 68.

Lewis C. Page, Honey Grove, Tex.; Rush Medical College, Chicago, 1870; died suddenly, August 20, at the Union Station, Fort Worth, aged 76.

Frederick G. Sawtelle, Watertown, Mass.; Long Island College Hospital, Brooklyn, 1880; veteran of the Civil War; died, September 3, aged 77.

Robert P. Catron, Union City, Tenn.; Eclectic Medical College, Cincinnati, 1870; Civil War veteran; died, August 29, from senility, aged 81.

Charles M. Henderson, Sardis, Miss.; University of Louisville, 1883; also a druggist; died, August 28, from carcinoma of the throat, aged 64.

Albert L. Bondy, Denver; Kansas City Hahnemann Medical College, Kansas City, Mo., 1910; died, September 6, from heart disease, aged 49.

John W. Warren, Snyder, Texas; Kentucky School of Medicine, Louisville, 1891; died in September, following a long illness, aged 64.

William F. Roome, London, Ont.; University of Michigan, Ann Arbor, 1867; former representative for West Middlesex; died, September 1.

W. H. Norris, Albany, Ky.; University of Tennessee College of Medicine, Memphis, 1896; died, August 29, from heart disease, aged 60.

Warren Blanchard Chapin ● New York; New York University Medical College, 1888; died, August 28, from heart disease, aged 59.

George L. Calhoun, Seville, Ga.; Georgia College of Eclectic Medicine and Surgery, 1911; died, August 15, from tuberculosis.

Henry S. Taylor, Springfield, Tenn.; Vanderbilt University, Nashville, 1881; Confederate veteran; died, August 17, aged 77.

Washington L. Kistler, Sparks, Nev.; University of Buffalo, N. Y., 1896; died, June 23, from nephritis, aged 56.

Edward Royal Hunlock, Portland, Ore.; Bellevue Hospital Medical College, New York, 1885; died, July 20, aged 66.

Preston A. Geeslin, Kahoka, Mo.; St. Louis College of Physicians and Surgeons, 1906; died recently, aged 54.

Elmore Mossman, Point Pleasant, W. Va. (license, West Virginia, 1883); died, August 1, aged 67.

William Giles, Toronto, Canada; Trinity Medical College, Toronto, 1886; died recently, aged 61.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MAGHEE'S EPILEPSY TREATMENT

During the past year THE JOURNAL has received inquiries regarding an alleged remedy for epilepsy sold on the mail-order plan by Thomas G. Maghee, M.D., of Lander, Wyoming. For instance, a North Carolina physician writes:

"The enclosed card and envelope containing two capsules are self-explanatory. I hope you can inform me concerning this treatment for epilepsy by letter or through THE JOURNAL. (Please omit my name.) What drug is contained in the capsule?"

And this from a physician in Nebraska:

"I am sending, under separate cover, six capsules of some preparation that is used for the treatment of epilepsy by a Dr. Maghee of Lander, Wyoming. Do you know anything about this treatment and will this be a large enough amount for analysis? I have a man here who has been using this for his son."

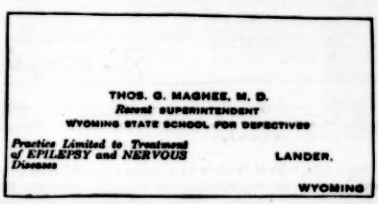
While this from a layman in Louisiana:

"I herewith attach circular letter on treatment for epilepsy. I would be glad to hear from you if you know anything of this treatment. I have a boy who is about 7 years old and has been suffering from this trouble for about six and one-half years."

Dr. Maghee seems to reach his mail-order clientele through the classified advertising section, of newspapers, the advertisement reading as follows:

> EPILEPTICS!
> Would you care to learn about the new Rational Treatment for IMMEDIATE RELIEF OF EPILEPSY which positively STOPS all seizures from the first day of its use? Information free. "SPECIALIST," Drawer 592, Lander, Wyo.

According to our records, "Specialist" Thomas G. Maghee was born in 1842 and was graduated in 1873 by the Medical College of Evansville, Ind., which became extinct in 1884.


THOS. G. MAGHEE, M. D.
Recent SUPERINTENDENT
WYOMING STATE SCHOOL FOR DEFECTIVES
Practice Limited to Treatment of EPILEPSY and NERVOUS Diseases
LANDER,
WYOMING

Maghee seems to send his professional card to all who answer his advertisements. Here is a photographic reproduction of the face of the card, showing the persistent attempt to capitalize his one-time connection with the Wyoming State School for Defectives. The reverse side of the card bears the legend: "My Rational Method of Treatment of Epilepsy Affords Immediate, Complete, and Continuous Relief From Seizures and all Other Symptoms."

Dr. Maghee seems to have brought out his epilepsy "treatment" sometime in 1915. At least, western newspapers in March of that year reported that Maghee, who was superintendent of the Wyoming State School for Defectives, and whose dismissal from that position was being considered by the State Board of Charities, had made a plea to the board to be "permitted to remain in control of the patients" for some weeks longer in order to "perfect his discovery." The papers stated further that Maghee "would not reveal to the State Board the nature of his cure." It is worth noting at this point that Dr. Maghee has apparently not revealed "the nature of his cure" to any one else; certainly careful search fails to show that he has ever contributed to medical literature.

Dr. Maghee still continues to capitalize his previous connection with the Wyoming State School for Defectives by

using stationery bearing the imprint "Dr. Thomas G. Maghee, Superintendent, Wyoming State School for Defectives." The word "recent" before "superintendent" is written in by hand. Those who write either to "Specialist, Drawer 592, Lander, Wyoming," or to Thomas G. Maghee, receive a printed letter, on the stationery just described, in which the sufferer is offered a "treatment which from the first day of its use, according to directions, will relieve you completely from any recurrence of seizures or other symptoms of the dread disease." The letter is reproduced in miniature with this article. In addition to the printed letter there is a small eight page leaflet bearing the imprint of "Maghee Chemical Corporation" and entitled "Dr. Maghee's Method of Treatment for the Immediate and Continuous Relief of Epilepsy." There is also a "professional card" of "Thomas G. Maghee, *Recent* SUPERINTENDENT WYOMING STATE SCHOOL FOR DEFECTIVES."

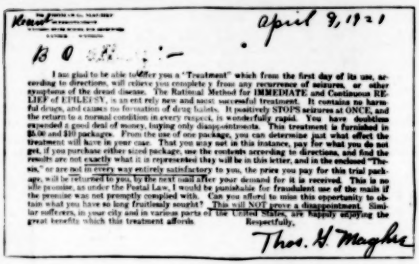
Some of the claims made in this advertising matter are:

"My Rational Method of Treatment of Epilepsy Affords Immediate, Complete, and Continuous Relief From Seizures and all Other Symptoms."

"Seizures will CEASE to occur at once, nervousness will decrease, sleep become normal and refreshing, the complexion will clear up and the MIND WILL IMPROVE RAPIDLY."

"This . . . Treatment . . . has in the five years of its use, prevented more suffering for the unfortunate victims of epilepsy, than the entire medical profession has been able to accomplish, during all the centuries which have rolled by since the practice of medicine began."

It is fairly obvious that the claims emphasized throughout the Maghee advertising matter to the effect that the treatment gives "IMMEDIATE and CONTINUOUS RELIF of EPILEPSY" that it "positively STOPS seizures at ONCE" and



April 9, 1921

I am glad to be able to offer you a "Treatment" which from the first day of its use, according to directions, will relieve you completely from any recurrence of seizures, or other symptoms of the dread disease. The Rational Method for IMMEDIATE and Continuous RELIEF of EPILEPSY, is an entirely new and most successful treatment. It contains no harmful drugs, and causes no formation of drug habits. It positively STOPS seizures at ONCE, and the return to a normal condition in every respect, is wonderfully rapid. You have doubtless expended a good deal of money, buying only disappointments. This treatment is furnished in $5.00 and $10 packages. From the use of one package, you can determine just what effect the treatment will have in your case. That you may not in this instance, pay for what you do not get, if you purchase either sized package, use the contents according to directions, and find the results are not exactly what it is represented they will be in this letter, and in the enclosed "Thesis," or are not in every way entirely satisfactory to you, the price you pay for this trial package, will be returned to you, by the next mail after your demand for it is received. This is no idle promise, as under the Postal Law, I would be punishable for fraudulent use of the mails if the promise was not promptly complied with. Can you afford to miss this opportunity to obtain what you have so long fruitlessly sought? This will NOT prove a disappointment. Similar sufferers, in your city and in various parts of the United States, are happily enjoying the great benefits which this treatment affords.

Respectfully,

Thos. H. Maghee

Photographic reproduction (reduced) of the letter sent out in reply to those who answer the Maghee newspaper advertisements. Note the use of the title "Superintendent" with "recent" written before it. "Recent," in this case, means six years ago.

that those who take it "return to a normal condition in every respect," can mean but one thing to the public, namely, that this is a cure for epilepsy. Nostrum exploiters have, however, learned by unpleasant experiences in the courts that it is dangerous to use the word "cure." This may or may not explain the closing paragraph of Maghee's circular in which he states that "While assurances of CURES have been received from various cases" and regardless of how fondly he "may hope or firmly believe that permanent Cures may result," he does "not feel warranted in making such claim." The average laymen is not going to quibble about words. If he thinks that he can get "immediate and continuous relief" from his suffering and is assured that he will "return to a normal condition in every respect" he will not care whether this is called a "cure" or merely a "treatment."

The Maghee treatment comes in $5 and $10 packages. Five dollars was sent to Dr. Maghee with the request that he send a package with full directions. It came in due time and was turned over to the A. M. A. Chemical Laboratory. Here is a summary of the chemists' report:

CHEMISTS' REPORT

"One original box of 'Dr. Maghee's Rational Method of Treatment' for the relief of epilepsy was submitted to the Chemical Laboratory for examination. The box bore the statement: 'It contains no bromides, opiates, other narcotics nor other habit forming drugs. . . .' In the box were 40 small sized capsules, containing a powdered mixture of black color; the average contents of each capsule was 0.105 gm. (1.6 grain). Qualitative tests indicated the presence of charcoal ('wood'), bismuth, nitrate and phenobarbital (luminal). The quantitative determinations were as follows:

"Moisture (dried at 120 C.)	1.0 per cent.
"Bismuth (equivalent to 3.8 per cent. bismuth subnitrate)	2.8 per cent.
"Charcoal	31.9 per cent.
"Phenobarbital (luminal)	64.5 per cent.

"For practical purposes, it may be deduced from the analysis that each capsule contains as its essential ingredient 0.068 gm. (approximately 1 grain) of phenobarbital (luminal) with which has been mixed 0.033 gm. (½ grain) of charcoal and a very small amount of bismuth subnitrate."

We find then that the essential drug in Maghee's "Rational Method for Immediate and Continuous Relief of Epilepsy" is phenobarbital (luminal). Although, from reading Maghee's advertising matter, the public would get the impression that Maghee discovered the value of this drug in epilepsy, the facts are it has been used in epilepsy both in this country and abroad and the results reported on in medical journals for the past nine years.

Summed up, it may be said that there is no rational excuse for the sale of phenobarbital in a secret mixture sold on the mail order plan for the self-treatment of so serious a condition as epileptic seizures.

Correspondence

PUBLIC HEALTH AND PRIVATE PRACTICE

To the Editor:—The interesting article on "Public Health and Private Practice" by Dr. L. L. Lumsden (THE JOURNAL, Sept. 3, 1921, p. 778) deserves a much wider discussion than could be given to it when it was read at the last annual session in Boston. It affects every practitioner in the United States and, as it presents some statements which are not entirely in harmony with facts, I herewith take the liberty to continue the discussion.

The statements to which I strongly take exception are:

(*a*) "Health service is essentially for the prevention of disease. Medical service is essentially for the cure of disease." Dr. Lumsden proceeds to nullify this line of demarcation by permitting health service to encroach on the sphere of medical service. Thus, he says: "In some instances, the cure of a case of infectious disease in one person is the most practicable means of preventing such disease in other persons," whereby treatment falls within the sphere of health service.

(*b*) "Though the physicians, through organization and *adroit* maneuvering, might obtain temporary advancement of their interests over those of the unorganized majority of citizens. . . ."

(*c*) "In the program of general welfare for which the *popular* demand is becoming more and more acute, there is *developing throughout the country, at an increasing rate, an intelligent conception of the relative and absolute importance of service for the conservation and promotion of the public health*" [italics mine].

(*d*) "In some instances, private practitioners, either as individuals or in groups, become the main objectors and obstructors to what appears, from the standpoint of the public interests, an entirely reasonable program of public health service in a community."

(*e*) "Usually the most vexatious difficulty with which the health department has to contend is the securing, from private practicing physicians, of reports of cases of communicable diseases coming under their professional care."

It was a practicing physician, Dr. Stephen Smith of New York, who laid down the first public health law. The practicing physician always prevents disease in addition to his

curing the patient. As the contagious nature of disease in general became known, his interest in his patient prompted him to apply measures to prevent reinfection of the patient and infection of those near him. The physician does not have to be driven to do this by any social welfare worker. Health service was first created by the private practitioner in order to meet conditions which were beyond his individual sphere of endeavor for the sole purpose of disease prevention. As long as "health service" will be confined to the prevention of disease through proper sanitation and hygienic measures, through popular education and a wide propaganda, that long it must command the unanimous and hearty support of every practicing physician. There is no reason why "health service" should encroach on the field of medical service. Charity is no justification for it, because physicians as individuals have never denied it to any deserving patient; collectively they form dispensaries and hospitals where even the non-deserving free medical-service bargain hunters are treated gratis; besides, every community has its special agency for dispensing charity.

On the other hand, wherever health service has encroached on medical service, i. e., wherever agencies intended for the prevention of disease have also established free clinics for the treatment of patients, great harm has been done to the medical profession by lowering the standard of special fields in medicine and by nourishing the forever present instinct for free treatment in the public. Every young physician who works in such a clinic soon branches out as a specialist in a particular field, without the intensive and special study needed for that purpose, but with an apparent stamp of approval by the board of health. This is an imposition on an unsuspecting public. No specialist of note and maturity will work in a board of health clinic for the small remuneration there obtainable, and the young practitioner becomes a specialist without proper guidance or instruction. I know a few such pediatricians, many nose and throat specialists, and a goodly number of genito-urinary wizards. Such conditions demoralize the practice of specialties which require a broad basis of general practice followed by intensive special studies under competent instruction. The relative pecuniary value of medical services becomes nil in the public mind because the health service agencies have unlimited free advertising under the guise of public education at their disposal with which free medical service is offered to the public.

To accuse the physicians and to insinuate that they "through organization and *adroit* maneuvering might obtain temporary advancement of their interests over those of the unorganized majority of citizens" is a crying injustice toward a body of men who have enriched history by their sacrifices and achievements in the interests of public health. The beggarly existence of the average physician is due to a notorious lack of organization. Conditions will become worse if the medical profession fails to heed the call of the times and to organize economically as other agencies of human activities have done. Medical men have always been organized for the advancement of their science, for public health and general welfare; only recently desultory attempts were made to direct their attention to their own existence by way of organization, and already they are stigmatized as "adroitly maneuvering . . . for their own advancement" by a Public Health Service officer.

"In the program of general welfare for which the popular demand is becoming more and more acute" the Public Health Service officer sees "an intelligent conception of the . . . importance of service for the conservation and promotion of public health." If prevention of disease had been left to popular demand, no such thing would have ever existed. The physicians originally forced it on the public and presently fostered the necessary agencies for that purpose. It is a common experience in every community to see the boards of health begging their municipalities for much needed funds and not receiving them. The department of health in one community of 700,000 is housed in a building that has many sanitary and building violations against it and still there are no funds available for a salutary change. This illustrates the popular demand!

Dr. Lumsden in the next paragraph repeats that there is an "increasing popular demand for service both to prevent and to cure disease." To prevent? No! To cure? Yes! And some of the Public Health Service authorities see an unprecedented opportunity to themselves of becoming popular by extending their activities beyond their intended sphere. In view of what was stated above, Dr. Lumsden's assertions that "in some instances private practitioners either as individuals or in groups become the main objectors and obstructors to . . . health service" should not be permitted to go unchallenged by the profession.

That there exists a "vexatious difficulty with which the health department has to contend, in securing from private practicing physicians reports of cases of communicable diseases" I shall not deny; but this difficulty is the very proof that this kind of health service is not at all popular, or else the public would command its doctors to make proper reports to the boards of health. Quite the opposite is true. There is forever friction between patient and physician whenever such a report is made. The people dislike to be placarded or indexed by their unfortunate illnesses. The health authorities have failed utterly to popularize this kind of health service. It seems to me that discreet reporting by the physician, without provoking placards or visits by the health authorities, would insure prompt and uniform reports, which are undeniably important for health statistics and disease prevention. Any health literature could also be transmitted to the patient by his physician.

Only through the family physician can the ideal state of disease prevention be obtained. He is only too willing to help the health authorities in their work. But his status in the eyes of the public as well as his economic existence must not be undermined by inroads of his own making.

The scope of health service in pure prevention of disease is vast in itself, and must be limited within that function to reach perfection. The recent epidemics are convincing proof that till now it has fallen far short of its ideal.

NICHOLAS LÚKIN, M.D., New York.

PROFESSOR IVAN P. PAWLOW STILL ALIVE

To the Editor:—In THE JOURNAL, September 3, there is a paragraph in the letter from your regular correspondent at Budapest, dated July 12, 1921, to which you have given the caption "The Fate of Pawlow." Whatever items under this heading may be correct, the statement regarding his death is wrong. Your Budapest correspondent states that he died in January, 1921. I have, in his own handwriting, a letter from Professor Pawlow dated April 28, 1921, and I have a letter from our mutual friend, Prof. Robert Tigerstedt of Helsingfors, dated July 14, 1921. Certainly on the last date Professor Pawlow was still living.

The pernicious activities of Bolshevik sympathizers, even in so-called "collegiate circles" in America, chiefly persons of Russian descent, make a detailed statement of conditions unwise, as all information is immediately sent back to Russia, with possible inconvenience to the parties under discussion.

As the life work of this great man is so well known to all scientists, it is unfortunate to have a statement of his death appear. The sufferings, privations and moral depression which a man of this remarkable caliber must be going through may, indeed, make death preferable; but, as a matter

of fact, on July 14, 1921, Professor Pawlow was still living, and so far as I know, not in precarious health.

Francis G. Benedict, Boston.
Director, Nutrition Laboratory, Carnegie Institution of Washington.

To the Editor:—In The Journal, September 3, there is a letter from Budapest, dated July 12, 1921, in which it is stated that Pawlow, the great Russian physiologist, had died in January, 1921. You may know that several years ago there was a rumor that he had died, which proved to be incorrect. Apparently the statement from Budapest is likewise incorrect. I have a copy of a letter from Dr. Edward W. Ryan, commissioner of the American Red Cross to western Russia and the Baltic States, written from Riga, March 23, 1921, to Col. Robert E. Olds, commissioner of the Red Cross in Europe. Dr. Ryan declares that the Red Cross was sending Professor Pawlow food and states that Pawlow's two sons, Victor and Vsevolod Ivanovitch, had not been heard from for two years and that he was very desirous of obtaining information regarding them. Again, April 24, Dr. Ryan reported that he had been able to send to Pawlow certain definite supplies which are listed. Furthermore, I have a letter from Prof. Carl Tigerstedt of Helsingfors, Finland, dated July 30, 1921, in which he acknowledges the receipt of money collected from friends of Pawlow in the United States and sent to him for Pawlow's aid. The Finns have official representatives in Petrograd. Dr. Tigerstedt reports that he has been sending a consignment of food of all kinds twice monthly to Pawlow through the Finnish commission, and that he is thus not suffering any more from lack of nourishment. Nevertheless, I am sending to Dr. Tigerstedt the report from Budapest and asking for specific information regarding Pawlow's welfare.

W. B. Cannon, M.D., Boston.

[Comment.—The Professor Pawlow to whom our Budapest correspondent referred may have been Prof. T. P. Pawlow of Petrograd, who held the chair of skin diseases and syphilis. This is not the first time that the death of Prof. Ivan P. Pawlow, the great physiologist, and recipient of the Nobel prize in 1905, has been reported. At the time of the death of E. W. Pawlow, an eminent surgeon of Petrograd, in 1916, a notice appeared to the effect that Prof. Ivan P. Pawlow was dead. It is seldom that one has the opportunity to read his own obituary on two different occasions.—Ed.]

THE REVIEW OF HORST OERTEL'S "GENERAL PATHOLOGY"

To the Editor:—I have read the review of my book on general pathology in The Journal (Sept. 10, 1921, p. 882) with interest and a good deal of concern about your reviewing department.

The reviewer, who is evidently a bacteriologist, has taken pains—and, I may add, with perfect right—to offer a criticism of certain details in the chapter on bacteria only, with certain other remarks on the historical side.

To certain inaccuracies and misprints in the text, he adds some of his own views on what he considers important omissions, such as the grouping of streptococci (by the way, of very doubtful pathogenic importance), the flea in connection with rat plague, the development of antibodies (at present one of the most unsettled questions) and some others, and to make much of them. The main and most important parts of the book, including the manner of treatment of immunity, the discussion on heredity and the whole section on pathologic anatomy and pathogenesis, he dismisses—like Mr. Podsnap—in one (!) sentence, viz.: "The sections on pathologic anatomy and pathogenesis are probably the most carefully worked over parts."

Has he understood them?

But then, after abruptly closing his review of the bacteriologic chapter, which leaves one with the impression that something has been omitted, he finishes with the curt statement that "in its present form the book cannot be recommended as a high class, reliable text."

It seems to me—and I dare say it will so appear to some other reasonable men—that your reviewer has offered no basis for such a wholesale, sweeping condemnation even on face of his own limited review. But to state this without referring in some detail to, or to offer any serious criticism of the main issues and contents of the book, appears to me an entirely unwarranted and serious miscarriage of a reviewer's rights, duties and obligations through personal bias which I can only consider entirely unworthy of any journal.

Horst Oertel, M.D., Montreal, Canada.

[Comment.—In accordance with our custom, Professor Oertel's letter was submitted to the reviewer, who replies:

The part of the book specifically mentioned by Professor Oertel constitutes one half of the volume. The improvement in the quality of the second half does not correct the deficiencies of the first half. I read the entire book before reviewing it, and I regret that I cannot conscientiously modify my opinion. I must disclaim emphatically that personal bias of any kind had anything to do with my conclusion.

The reviewer is recognized as one of the leading pathologists of the country; he is professor of pathology in one of the well and favorably known medical schools, and has contributed widely to the literature on pathology.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FOR CLEANING PRIVY VAULTS

To the Editor:—I should like to have information with regard to some compound used for cleaning out privy vaults. I have seen something used for this purpose that did the work very well, and should like to know what it is. Any information you can give me on this subject will be greatly appreciated. C. L. Bradley, M.D., Newhall, Iowa.

Answer.—The "chemical" used in "chemical closets" is generally commercial sodium hydroxid. Some firms direct that, after the solution is made up for use, an oil be poured on the surface to diminish odor. Care must be exercised in the use of such a closet so that splashing will not occur, whereby the flesh might be attacked by the caustic.

RHINOPLASTIC SURGERY

To the Editor:—Please recommend to me two or three of the most recent works on rhinoplastic surgery and the name of the publishers.

Keith Kahn, M.D., New Orleans.

Answer.—The following is a list of references to recent articles and books on rhinoplastic surgery:

Cohen, L.: Further Observations on Correct Rhinoplasty, *Surg., Gynec. & Obst.* **31**: 412 (Oct.) 1920.
Chubb, G.: New Method in Rhinoplasty, *Lancet* **2**: 354 (Aug. 14) 1920.
Behrend, Moses: Rhinoplasty to Replace Nose Bitten Off by a Rat, The Journal, June 18, 1921, p. 1752.
Gillies, H. D.: Plastic Surgery of Face Based on Selected Cases of War Injuries of Face, New York, Oxford University Press, $15.
Bourguet, J.: Misshapen Noses and Their Surgical Correction Without Cicatrix, London, Bailliere, Tindall & Cox, 3 shillings.

PREVENTIVE OF COLD FINGERS IN DRIVING

To the Editor:—I have found a very simple procedure that has contributed greatly to the comfort of winter driving and is well worth while passing on to the profession. It consists of sewing two pieces of fur of suitable length to the rim of the steering wheel, where it is grasped in driving, and in my experience has proved almost a "specific" in preventing cold fingers, something a glove has failed to do. In warm weather the fur will keep the palms from callusing, thus eliminating uncomfortable gloves.

Harry W. Davis, M.D., Plains, Kan.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 135 Stockton St., San Francisco.

COLORADO: Denver, Oct. 4. Sec. Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

FLORIDA: Tallahassee, Oct. 11. Sec., Dr. William M. Rowlett, Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 11. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.

IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.

ILLINOIS: Chicago, Oct. 19-22. Director, Mr. W. H. H. Miller, Springfield.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 10-12. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York City and Syracuse, Sept. 26-29. Mr. Herbert J. Hamilton, Asst. Professional Examinations, Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.

PHILIPPINE ISLANDS: Manila, Oct. 11. Sec., Dr. Fortunato Pineda, 612 Rizal Ave., Manila.

PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

UTAH: Salt Lake City, Oct. 4. Sec., Dr. J. T. Hammond, Capitol Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

Georgia June Examination

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, June 8-10, 1921. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Sixty-five candidates were examined, all of whom passed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons		(1901)	90.1
Emory University (1921) 84, 85, 87, 87, 87, 87.2, 87.6, 87.9, 88.1, 88.1, 88.2, 88.2, 88.5, 88.5, 88.7, 89.2, 89.3, 89.3, 89.7, 89.7, 89.9, 89.9, 89.9, 91, 91.5, 91.5, 91.6, 91.8, 91.9, 91.9, 92.5, 92.6, 92.7, 92.9, 92.9, 93.3			
Southern College of Medicine & Surgery		(1913)	83.8
University of Georgia (1921) 84.8, 86.5, 87, 87.1, 87.8, 87.9, 88, 88.1, 88.4, 88.9, 89.2, 89.5, 89.6, 90.1, 90.9, 91.1, 91.2, 91.5, 92.7			
Johns Hopkins University		(1919)	93.4
Columbia University		(1921)	92.6
Jefferson Medical College (1916) 88.1		(1921)	88.7, 90
University of Pennsylvania		(1921)	89.7
Meharry Medical College		(1921)	82.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Med. Coll. & Hosp. of Chicago		(1917)	Tennessee
Tulane University		(1911)	Louisiana
Baltimore University School of Medicine		(1897)	Maine
University of Michigan Medical School		(1917)	Michigan
Columbian University Medical Department		(1882)	New York
Medico-Chirurgical College of Philadelphia		(1900)	Penna.
Temple University		(1911), (1913)	Penna.
Medical College of the State of South Carolina		(1916)	S. Carolina
Vanderbilt University		(1916)	Tennessee
University of Texas		(1915)	Texas
University College of Medicine		(1913)	Virginia

Book Notices

THE SEX-COMPLEX. A Study of the Relationships of the Internal Secretions to the Female Characteristics and Functions in Health and Disease. By W. Blair Bell, B.S., M.D., Gynaecology Surgeon to the Royal Infirmary, Liverpool. Second edition. Cloth. Price, $6. Pp. 251, with 61 illustrations. New York: William Wood and Company, 1921.

That a second edition of so highly specialized a work should be issued at this time suggests either that the subject is one just now attracting considerable attention or that the author has been peculiarly fortunate in the exposition of his theme. Both of these inferences are correct. Not only does Bell discuss the functions of the reproductive system as directed and controlled by the organs of internal secretion in a manner at once sane and readable, but it is evident from the increasing literature pertaining to the endocrine system that interest in this subject of complexities is not waning. The correlation of the internal secretions in regard to the sex functions—the "sex complex" of the author's meaning—is here taken up in as much detail as present knowledge permits, an attempt to weld together, to formulate concretely the investigations that have thus far been contributed. This edition presents no new aspects of the subject, but rather alterations in the nature of extensive additions, amplifications and revisions. The work is divided, as before, into two general groups of subjects, the first covering morphologic, physiologic and psychologic considerations; the second, pathologic considerations. Particularly interesting and important is the expression found coming to the surface throughout the volume that, while each of the various endocrine glands may be studied as an anatomic entity, it is only as a collaborating whole that they function. If this were constantly borne in mind by all who contribute to the literature of "endocrinology," much confusion of thought would be saved. As has been intimated, in this volume is offered one of the sanest and most readable contributions pertaining to the influence of the internal secretions in gynecology.

DIE THERAPIE DER PLACENTA PRAEVIA. Von Professor Dr. F. Hitschmann. Paper. Price, 48 marks. Pp. 175. Berlin: S. Karger, 1921.

This is a minute analytic discussion of the various methods in vogue for treating placenta praevia. The author takes 175 pages to prove what Williams in his textbook on obstetrics covers in three pages, and, as in most German works of this nature, resorts to much repetition and painful detail. The introduction, like a Shaw preface, embraces the first forty pages, consisting of a brief historical sketch of the treatment of placenta praevia from the publication of Braxton Hicks in 1862 to the present time, dwelling at great length on a discussion of Krönig and Sellheim's work. The latter, based on Aschoff's anatomic studies of the formation of the lower uterine segment, still remains, says Hitschmann, unproved though not disproved. A critical review of the mortality from sepsis in placenta praevia in the German clinics is given, from which Hitschmann concludes that the mortality from this cause is ten times greater in the clinic and twenty times greater in general practice than when the placenta is normally placed. He finds practically no difference in the mortality whether treated by Braxton Hicks version or by metreurysis (1.4 and 1.3 per cent., respectively). He warns that every patient with placenta praevia should be brought to a maternity at the first hemorrhage without internal examination. The vaginal examination is unnecessary for diagnosis, as bleeding in the last weeks of pregnancy is due to placenta praevia in 95 per cent. of cases. Tamponade for hemorrhage should be resorted to only in extreme necessity, and then under rigid aseptic technic, and only for the purpose of arresting the bleeding while transporting a patient to a hospital.

Under the caption "personal investigation," the author first takes up a consideration of the third stage of labor in placenta praevia. Postpartum hemorrhage occurred in 909 cases in a series of 2,548 cases reviewed. Of these, in 619 hemorrhage occurred before expulsion of the placenta, and in 290 after expulsion. The placenta was expressed in 327 and manually removed in 292 cases. Hemorrhage from

atony and cervix tears occurred in 290 cases. The fact that only 35 per cent. of this large series had postpartum hemorrhage, and 65 per cent. experienced a normal, smooth third stage is a distinct body blow to the Krönig and Sellheim procedure (cesarean section). The causation of hemorrhage in placenta praevia is discussed at great length, and the procedures in which cervix tears occur are dissected. To the treatment of tears of the cervix and lower uterine segment he gives minute attention and strongly urges the profession to consider more seriously the prevention of such tears.

Under "Choice of Methods" of treatment, Hitschmann concludes from his extensive statistical study that Braxton Hicks version and the use of the hydrostatic bag followed by version are the two methods applicable to the greatest number of cases. Rupture of the membranes alone can be resorted to in a small group (about 12 per cent.) in which only partial praevia with slight hemorrhage occurs, and in which strong pains force the head down and compress the placenta. Cesarean section is indicated in a small group of cases with complete praevia with rigid, undilated soft parts. By this method the maternal mortality is reduced from 10 to 20 per cent. to 5 per cent., and the fetal mortality also reduced to 5 per cent. (Momm) when the baby was alive and viable. Classical cesarean section is advised for all aseptic cases in this group, and extraperitoneal for suspicious or septic cases; vaginal cesarean section is not recommended. In discussing the relative merits of the various methods, the author determines his indications by the severity of the hemorrhage, the time of occurrence, mode of its production, and condition of the mother.

Hitschmann's final conclusions, arrived at after careful scrutiny of the results of the various continental clinics, bring us nothing that is new in the treatment of placenta praevia. The procedure that has been followed in the leading American clinics for many years, as prescribed by our American authorities, is substantiated by this extensive study, and it is gratifying to know that our reasoning in this serious condition proves true in the work of Professor Hitschmann.

PITFALLS. By A. J. Caffrey, M.D. Cloth. Price, $2 net. Pp. 199. Boston: Richard G. Badger.

"The chapters are taken from notes of twenty years' experience and, barring some frills, are true to life, showing the many peculiar incidents—tragic and otherwise—that crop up in the life of a doctor." True stories, such as occur in the life of every physician and told just as every physician might tell them, form the basis of this book. Dr. Caffrey is awake to what has happened, and he has a news sense which has enabled him to select incidents of interest. The stories have instructive value for those interested in public health work, and the differentiation of right and wrong in medical practice will instruct many of the medical profession as well as the public. Unfortunately, the literary style is not polished. There has been apparently no divinity to shape the ends, rough-hew them as Dr. Caffrey has.

MORBO DI HIRSCHSPRUNG E NANISMO IPOFISARIO. Per el Prof. Dott. Nino Samaja, Primario e Libero Docente. Paper. Pp. 52. Pesaro: Prem. Stab. d'Arti Grafiche Cav. G. Foederici, 1920

This brochure contains the description of an interesting case under the author's observation in a Bologna hospital—megacolon associated with dwarfism of pituitary origin. The patient was a woman, aged 20. She was the oldest child. Two brothers were of normal stature, as was the father; the mother, however, was 18 cm. less than the average height. Megacolon has been found associated with spina bifida occulta and other affections of the nervous system; but after an exhaustive consideration of megacolon in general, hyperpituitarism and hypopituitarism, Samaja concludes that in this instance the association was a mere coincidence.

HARROWER'S MONOGRAPHS ON THE INTERNAL SECRETIONS. Hyperthyroidism: Medical Aspects. Edited by Henry R. Harrower, M.D., F.R.S.M. Paper. Price, $1.50. Glendale, California: The Editor, 1921.

This monograph is a compilation of scattered facts, shadowy theories, and conclusions that are often unwarranted, the whole largely taken from sources not always reliable, and put together in such a way as superficially to resemble a scientific article. An enumeration of symptoms after the manner of a catalogue, a commonplace insistence under the head of therapy on the value of proper food, rest, freedom from worry, etc., big words, fanciful speculation, personal opinion pretentiously uttered as by an authority, a bibliography formidable in size but of injudicious selection—these are the outstanding features. The style is untidy; there are many grammatical errors. The book is said to be gotten out by the "Literary Department" of the Harrower laboratory. We cannot help feeling that the departments of literature and advertising are very closely related or that they are, perhaps, one and the same thing. For, unless we are mistaken, there is running through this article a clever plan to lead the unwary to think it is proper to prescribe some or many of the endocrine products of the Harrower laboratory.

Social Medicine and Medical Economics

CHILDREN DEPRIVED OF PARENTAL CARE

Bulletin 81 issued by the Children's Bureau on "Children Deprived of Parental Care" is a study of 513 children removed from their homes by the state of Delaware and cared for by state institutions and agencies. The study covered a two year period. All the children were under 18 years of age. The group studied included 403 white and 110 negro children, constituting, respectively, 79 and 21 per cent. Nineteen were foreign born. One fourth were of foreign or mixed parentage. Twelve per cent. were born out of wedlock. Seventy-six per cent. came from one city, Wilmington. Three hundred and ninety-eight family groups were represented. Forty-three per cent. were from families of five or more children. Three per cent. were full orphans. Thirty-one per cent. were half orphans. With due allowance in cases in which the full facts were not known, from 50 to 66 per cent. had both parents living. Regarding bad home conditions, alcohol was the most frequently reported, being present in more than one fourth of the cases. One fifth of the children were removed from households reported as immoral. Forty-eight per cent. came from families with an income adequate for decent standards of living. In 130 cases, the mother was the economic head of the family. In 105 cases, the mother worked away from home. Seventy-four per cent. of the children under 7 years of age had a record of delinquency. Eighty-three per cent. of the children were placed in institutions, and 17 per cent. in private families. The institutions include industrial schools, homes for dependent children, almshouses, etc. No special provisions are made in Delaware for mentally defective children, of which in this group there were fifty-eight. The remedies enumerated by the Children's Bureau are extension of juvenile court and probation work; state-wide physical and mental examination of deliquents and dependent children; special provisions for mental defectives; exclusion of children from almshouses; enforcement of school attendance; regulation of employment; establishment of recreation centers; increased methods for prevention of disease, and standardization of state child welfare efforts.

CHILD WELFARE IN TENNESSEE

At the request of the Tennessee Child Welfare Commission, the National Child Welfare Committee was requested by the governor of Tennessee to make a survey of child life in the state. The report, entitled "Child Welfare in Tennessee," consists of ten chapters, each written by a specialist, with an introduction by Dr. Edwin M. Clopper, under whose direction the survey was made. The report includes chapters on child and state, health, schools, recreation, rural life, child labor, juvenile courts, mothers' pensions, institutions and home finding. The report on health, written by Dr. H. H. Mitchell, states that preventable disease is holding back progress in Tennessee more than in the United States as a whole, and that the failure of the state to prevent disease, and the lack of sufficient scientific medical service, fall particularly hard on children. In 1917, the year covered by the survey, Tennessee had the largest number of deaths from typhoid per hundred thousand of any state in the registration

area, the death rate from this cause being 38.3 per cent., while the registration area death rate for the same year was only 13.4 per cent. The death rate from dysentery for the same year was more than three times the registration area death rate. An intensive study of three rural communities shows one community with a population of 577, distributed in 111 homes, had 125 cases of typhoid and dysentery in five years, more than one to each home and more than one for every five persons. Another community with a population of 567, in 122 homes, had 199 cases of typhoid and dysentery in five years, more than one case for each three persons. A study of public water supplies in forty-three towns and cities of the state by the United States Public Health Service showed that 39.55 per cent. were polluted with sewage. Hookworm was found in seventy-seven counties, thirty-four of which showed that more than 3 per cent. of children between 6 and 18 years of age were infected. Seventeen counties show a rate of more than 50 per cent., and two counties rates of 71.5 and 73.3 per cent. of infection. An estimate of the prevalence of malaria shows that more than 50,000 children under 20 years of age were suffering from this disease. In 1917, Tennessee had the second highest death rate from malaria of all the states in the registration area. Using the Framingham ratio of nine active cases of tuberculosis for each death, it is estimated that in 1917 there were 33,000 active cases of tuberculosis in the state. Diphtheria, whooping cough, trachoma, physical defects and malnutrition are also considered in this chapter. Dr. Mitchell recommends enlarging and improving the state department of health; larger appropriations for health problems; an enabling act permitting counties to levy a tax to support a county health board; control by the state board of health of all public water supplies and sewage disposal systems in the state; the control of all plans for schoolhouses by the state board of education; and the creation of a division of physical education under the state department of education, and the development of a practical health program, under the direction of the state board of health.

Miscellany

NARCOTIC DRUG REGULATIONS IN ENGLAND

The Dangerous Drugs Act, the British equivalent of our Harrison Narcotic Law, was adopted by the British Parliament in 1920, and a committee was appointed by the secretary of state for the home department to consider the objections raised by the British medical profession to the regulations drafted under the act. Following the report of this committee, the regulations were modified. A synopsis of the revised regulations, which went into effect, September 1, appears in the *British Medical Journal* for August 27.

The drugs affected by this act are opium and morphin and any preparation containing 0.2 per cent. of morphin or more, and cocain and heroin and preparations containing 0.1 per cent. or more. Any duly qualified medical practitioner is authorized to be in possession of a supply of these drugs, so far as is necessary for the practice of his profession. All prescriptions containing these drugs must be dated and signed with the full name and address of the physician issuing the prescription, and must give the name and address of the person for whose use the prescription is given and the total amount of the drug to be supplied. Prescriptions cannot be refilled unless they so direct and then not more than three times, at intervals to be specified in the prescription. Physicians dispensing their own medicine must keep a record of the prescribed drugs showing the date purchased, source of supply, amount and form of the drugs and a daily record showing the amount dispensed, the name and address of the patients, and the date. Personal administration by a legally qualified physician does not come within the law, but drugs left in a private house or administered by a nurse in a hospital must be recorded. Preparations containing less than the minimum amount of these drugs need not be recorded. In hospitals in which there is a licensed pharmacist, prescriptions by the visiting physician or the house physician must be written on the patient's record sheet or on the order book, and must be initialed by the physician. In hospitals where there is no licensed pharmacist and no medical officer in charge, orders for these drugs must be signed by a member of the medical staff. Any hospital, asylum, institution or sanatorium supported by public authority out of public funds is exempt from the regulations, but is required to comply with "Schedule 1." This schedule provides for the ordering, dispensing and prescribing of habit-forming drugs to patients or inmates of institutions under the control of the physician or pharmacist on the hospital staff, and for necessary restrictions in handling or dispensing these drugs. Teaching institutions approved by the home secretary may authorize any person in charge of a laboratory for the purpose of research or instruction to be in possession of these drugs. The list of approved institutions includes all universities, medical and pharmacy schools of Great Britain and Ireland, the National Institute of Medical Research, and the Royal College of Science for Ireland. Occupiers of factories and work shops to which the Factory and Workshop Act applies may possess cocain solution for use in the eyes. Unregistered dental practitioners may possess cocain solution not stronger than 0.1 per cent. for use as a local anesthetic. Certified midwives may possess and administer preparations of opium. Farmers and stock owners may, on obtaining a police certificate, possess tincture of opium, and skippers of British fishing vessels may purchase compound tincture of chloroform and morphin, and tincture of opium.

THE POWER OF THE HEART

A writer in the *Scientific American* has been doing some figuring as to the horse-power—he does not use this expression—of the human heart, and he evolves some statistics which, while of no practical importance, are interesting. Within each human breast, he says, this energetic organ is beating, on an average, about seventy-five times a minute, or 4,500 times an hour. Accordingly, the heart beats, approximately, 108,000 times daily, 39,000,000 times yearly, and, during a lifetime of three-score and ten years, two billion seven hundred million times. If we estimate the population of our world at 1,700,000,000 people, then all the human hearts on our terrestrial planet are beating at the rate of, approximately, 127,000,000,000 times a minute, or 66 quadrillion times a year. That is to say, these 1,700,000,000 human hearts are throbbing at a rate of about 2 billion times a second.

As we well know, our heart-engine contains four compartments, two auricles and two ventricles. The auricles are reservoirs which supply the pumping ventricles with blood. Therefore, the dynamic energy of the human heart resides in the right and the left ventricles. When these ventricles contract, the right ventricle sends its supply of impure blood to be purified by the oxygen in the lungs, and the left ventricle forces its supply of purified blood to circulate in the body. When the "heart beats," that is, when the right and left ventricles beat, an average of about 10 cubic inches of blood is expelled from the heart engine. Accordingly, in a minute, after seventy-five heart beats the energetic heart has pumped 750 cubic inches of blood. This means that the heart pumps 45,000 cubic inches of blood an hour, 1,000,000 cubic inches of blood a day, and 392,000,000 cubic inches, or more than 225,000 cubic feet, of blood each year. Were the heart a water pump instead of a blood pump, it would expel, since a cubic foot of water weighs about 62½ pounds, approximately, 7,000 tons of water, during the course of one year.

And this amount of work is accomplished by only a part of a small muscular organ about as big as the average human fist! It has been estimated that the left ventricle alone exercises sufficient pressure per square inch to support a column of blood 9 feet in height, and that it performs daily an amount of work equal to 90 foot-tons. Were we able to collect in a cubical reservoir all the blood pumped by one heart-engine in one year, that reservoir would be about 61 feet in each of its three dimensions. Or, were it a circular water-tower, with a diameter of 50 feet, it would be somewhat more than 115 feet in height, and it would contain about 1,700,000 gallons.

Medicolegal

Efforts Should Be Used to Save Injured Arm or Leg

(Wrenn v. Connecticut Brass Co. et al. (Conn.), 112 Atl. R. 638)

The Supreme Court of Errors of Connecticut says that the plaintiff, on March 6, 1915, sustained a severe fracture of his left forearm which left his arm in a twisted and unnatural position. A competent surgeon was of the opinion that the operation of effecting a bone graft would make a useful arm of the injured member. The operation was performed, and by the latter part of April, 1916, the forearm had become straight, and the surgeons believed that good functional results would follow, and a useful arm follow the operation. Instead, a suppurative process persisted, and on June 26, 1916, it was necessary to operate further in order to prevent a more serious condition, and this wound finally healed by August, 1916. The arm has never been a useful arm since the original injury, and at no time has it been useful for industrial purposes. Not until August, 1916, to which time the treatment of the arm was continued, when the wound in the arm finally healed and the treatment was discontinued, did the period of incapacity for which the injured employee was entitled to compensation cease and the condition of a complete and permanent loss of the arm exist. For that period he was entitled, under the workmen's compensation act to compensation for the incapacity; and then for the complete and permanent loss of the use of the arm.

All reasonable efforts should be used to save an injured arm or limb, and thus prevent the necessity for its amputation, or its complete loss of usefulness. Until the time for such effort has passed, professional skill should be directed to effect a cure. When competent professional opinion on fair examination reaches the conclusion, or should reach the conclusion, that it is not reasonable to expect to cure or improve the injured arm, it can then be said for the first time that the loss of this member has occurred. Then, unless something further must be done to improve or heal the member, there exists the condition described in the statute, "the complete and permanent loss of the use of one arm," and the specific compensation provided by statute is then due. But this does not compensate the injured employee for the period between the date of injury and the date of determination of the complete loss of use. The incapacity during this period may have been total or partial, and the Connecticut act provides compensation for this period of incapacity as well as for the complete and permanent loss of the use of the arm. The loss of the arm through amputation occurs when the amputation takes place. The complete and permanent loss of the use of the arm occurs when no reasonable prognosis for complete or partial cure and no improvement in the physical condition or appearance of the arm can be reasonably made. Until such time the specific compensation for the loss or for the complete and permanent loss of the use of the arm cannot be made.

The court is not impressed with the argument of the defendants that this interpretation of the act will lead employers and the insurers of employers to cause the amputation of the injured member instead of seeking to effect in all cases a cure before resorting to amputation. The court's faith in the humanity and integrity of employers and insurers and in the good faith and professional honor of surgeons forbids the court's adoption of so repulsive a conclusion.

Physician Allowed to Refresh Recollection from Statement in Abortion Case

(State v. Grwich (N. J.), 112 Atl. R. 594)

The Court of Errors and Appeals of New Jersey, in affirming a judgment of the supreme court of that state which affirmed a judgment of conviction of the defendant, quotes the opinion of the supreme court to the effect that the defendant was convicted on an indictment charging her with the crime of abortion, committed on a Mrs. Meyer. The only ground of reversal relied on was directed at a ruling of the trial court with relation to the admission of the testimony of a physician who had been summoned to treat Mrs. Meyer after the abortion. The witness was being examined on what in his opinion had produced the physical condition in which he found the patient, and whether that opinion was the result of conversations with Mrs. Meyer and her husband. For the purpose of refreshing his memory he was shown a written statement which he said had been prepared in his presence by one Hulsenbach, purporting to contain a recital of what Mrs. Meyer had said before him, Hulsenbach, and others on the day of her death, and was asked whether by looking over that statement his memory would be refreshed as to some of the details concerning which he was uncertain. Replying that it would have that effect on his recollection, he was permitted to examine that written statement, over the objection of the defendant's counsel, and the ruling in that regard was asserted to be erroneous and to justify a reversal of the conviction. But the trial court was right in holding that the witness was entitled to examine the paper writing for the purpose of refreshing his recollection with relation to any facts material to the issue, nothwithstanding that the writing was done by a person other than the witness, provided that the latter knew the contents of the paper at the time it was written, and that he had such knowledge the witness had already stated at the time the paper was exhibited to him. The court of errors and appeals adds that it agrees with the supreme court as to the only point discussed in its opinion; let the judgment be affirmed.

Enjoining the Illegal Practicing of Medicine

(Board of Medical Examiners v. Blair (Utah), 196 Pac. R. 221)

The Supreme Court of Utah affirms a judgment for the plaintiff in this action brought by the board of medical examiners to enjoin the defendant, a chiropractor, from practicing medicine in the state of Utah without a license. The court does not consider that the legislature, by delegating or granting to the board, a corporate body created by law, the right to institute a civil action to enjoin any one from practicing medicine without a license, acted in violation of the prohibition of the state constitution from enacting any private or special laws granting an individual, association or corporation any privilege, immunity or franchise. The court says that the health of the community is of paramount importance and great public concern. The spread of contagious disease and the suppression or removal of the causes of such diseases is a matter of the utmost concern to the state at large. So long as any regulation is enacted and enforced with the object of protecting the health of the community, such legislation and regulation should not be nullified by the courts unless it clearly appears to violate some fundamental right of the individual. It is a little late in the history of human progress, considered in connection with the knowledge acquired of physical and mental ailments, the advancement of the science of medicine, the discoveries of the causes and prevention of diseases, to contend now that no particular knowledge or qualification is required for the intelligent treatment of physical and mental ailments. Whether the qualifications as defined and required by the statute are justified by the facts is not a question for the courts to determine. The legislature has the undoubted right to make such requirements. Their extent is clearly within the province of that body. The court is not concerned, nor should it be, with the good or bad results that may follow the treatment by chiropractors, or, for that matter, of any particular method of treating physical or mental ailments. The proceedings authorized by the section of the statutes in question are not directed against any particular system of treatment, but they are directed against those who practice medicine within the state without a license. It is simply a question of requiring every one before attempting to treat physical or mental ailments to obtain the necessary license for the constituted authority so to practice. The right given to the board of medical examiners is not for the benefit or the protection of the members of what is known as the medical fraternity, but rather for the creation of a method of procedure to protect the health of the community. Nor does the court consider that the defendant was entitled to a trial by jury.

It may be conceded that the power to enjoin the threatened commission of ordinary crimes has never been recognized by the courts. But the court is here dealing with the right or power of the legislature to enact and to provide means for the enforcement of regulations looking to the health of the

community. The statute was enacted, not to provide a means of punishing those violating its provisions, but to protect the community from what, in the judgment of the legislature, was or might be detrimental to the public health. The power of the court, while not often called into force, to prevent such an injury, has been repeatedly recognized in the decisions of the courts of this country.

The argument against the statute, because it required chiropractors to have a knowledge of materia medica and some other subjects, was one to be addressed to the legislature. Should it be conceded that the contention against it rendered doubtful the validity of such requirement, it would not render the law invalid, because when there is any reasonable doubt as to the validity of a statute the doubt must be resolved in favor of its validity. Another objection that was one to be urged on the legislature, and not the courts, was that the law was for the protection of the regular physicians and osteopaths, and that it was wholly mercenary in its purpose, and not for the protection of the public, the contention being that one of the elements of the offense of practicing medicine without a license was that the practicing be done for a fee or consideration, and, if done without a fee or without consideration, any one, chiropractor or what not, might treat the sick and afflicted in the state in any manner he might desire, and regardless of results.

Society Proceedings

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Public Health Association, New York, Nov. 14-18.
American Roentgen Ray Society, Washington, D. C., Sept. 27-30.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Colorado State Medical Society, Pueblo, Oct. 5-7.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Indiana State Medical Association, Indianapolis, Sept. 28-30.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mid-Western Association of Anesthetists, Kansas City, Mo., Oct. 24-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1921, **162**, No. 2

*Acute Arteritis Complicating Pneumonia. G. D. Head, Minneapolis.—p. 157.
*Periarteritis Nodosa. M. Manges and G. Baehr, New York.—p. 162.
Urticaria, Classification of Types and Its Causes. G. L. Lambright, Cleveland.—p. 183.
*Value of Basal Metabolism Studies in Diagnosis and Treatment of Thyroid Diseases. A. H. Rowe, Oakland, Calif.—p. 187.
*Blood Changes in Gastrectomized Patient Simulating Those in Pernicious Anemia. H. R. Hartman, Rochester, Minn.—p. 201.
*Streptococcus Hemolyticus Empyema. J. I. Johnston, Pittsburgh.—p. 206.
Internal Hydrocephalus in a Syphilitic, Probably Due to Intraspinal Treatment. A. Keidel and J. E. Moore, Baltimore.—p. 209.
*Ozena and Its Relation to Tuberculosis. F. H. Linthicum, Los Angeles.—p. 216.
*Diabetes Mellitus, Syphilis and Negro. I. I. Lemann, New Orleans.—p. 226.
*Studies on Dosage of Digitalis in Children. H. McCulloch and W. A. Rupe.—p. 231.
*Pedunculated Tuberculosis of Peritoneum: Perisucht: Report of a Case in Human. H. M. Ray, Pittsburgh.—p. 237.
Sequels of Epidemic Encephalitis. W. Boyd.—p. 248.
Mechanism of Lowered Resistance Following Exposure to Lowered Temperature. L. B. Bibb, Camp Stanley, Tex.—p. 258.
Therapeutic Pneumothorax Complicated by Hydropneumothorax and Pleurisy, with Effusion on Untreated Side. B. P. Stivelman, Bedford Hills, N. Y.—p. 270.
Edema of Glottis in Obscure Deaths. M. M. Canavan, Boston.—p. 273.

Acute Arteritis Complicating Pneumonia.—Head reports a case of lobar pneumonia complicated by arteritis and thrombosis of the right femoral and popliteal arteries; gangrene of the leg; amputation and recovery, and a case of localized gangrene of the skin of the toes complicating bronchopneumonia.

Periarteritis Nodosa.—The diagnosis in the case cited by Manges and Baehr was made early in the course of the disease, and they had the unusual opportunity of studying the vascular lesions both in the early inflammatory stages as well as in the stage of healing toward which it had progressed when death occurred from secondary nephritis. By being thus able to follow the different stages of the process and to compare them with the findings of the necropsy, the authors have been able to correlate the varying pathologic and clinical pictures described in the previously reported cases.

Value of Basal Metabolism in Thyroid Disease.—The importance of basal metabolism studies in the handling of thyroid diseases Rowe urges must be recognized. By metabolic rate determinations diagnosis of early and obscure cases of hyperthyroidism is greatly aided. Moreover, the degree of severity of an obvious hyperthyroidism can be determined by this test. Again, the presence or absence of toxicity of an adenomatous thyroid is made evident through these metabolic studies. As a guide for surgical removal of goiters, surgeons are recognizing the value of this test. Finally, in the diagnosis of hypothyroidism and in directing and gaging thyroid administration metabolic rate determinations are of the greatest importance.

Blood Changes in Gastrectomized Patient Simulating Pernicious Anemia.—Hartman's patient had been operated on for a gastro carcinoma which developed on the base of an indurated ulcer. The cytologic study of the blood revealed the picture of pernicious anemia. The hemoglobin ranged between 53 and 55; the erythrocytes were between 2,000,000 and 2,280,000; the leukocytes varied between 2,200 and 7,600, and the color index was constant at 1.2+. The differential count read as follows: 200 cells counted; polymorphonuclear neutrophils, 59 per cent.; small lymphocytes, 35.5 per cent., large lymphocytes, 5.5 per cent. Slight anisocytosis and poikilocytosis were present. The Ribiere test revealed an increased resistance of the red cells. The blood Wassermann test was negative.

Streptococcus Hemolyticus Empyema.—Among twenty-five cases which could be classified as empyema; seven were due to *Streptococcus hemolyticus*. These seven patients developed this feature as a complication and not as a sequel of acute pulmonary infection; they were treated by frequent aspirations, which was followed by subsequent resection; the number of aspirations averaged seven in number; the length of time between aspirations was two or three days; the period before resection was done was between two and three weeks; no washing of the pleurae was practiced and all recovered, but over a prolonged period of time. Two of these cases required second resection despite the proper surgical procedure skilfully carried out.

Ozena and Tuberculosis.—Of the various remedies tried by Linthicum in the treatment of ozena by far the best results have been obtained with the use of tuberculin. He insists on the relation that exists between the disease ozena and tuberculosis. Of twenty-eight cases that have come to necropsy, tuberculosis was found in twenty and was the cause of death in fifteen of these. In 129 cases a family history of tuberculosis was demonstrated in seventy-three. In 126 cases in which definite clinical tuberculosis was found in fifty-two.

Syphilis and Diabetes Mellitus in Negro.—Lemann is convinced that there is no relation between the incidence of diabetes mellitus and syphilis in the negro; hence there is no probable etiologic relation between the two.

Dosage of Digitalis in Children.—The results obtained by McCulloch and Rupe show that between 8 and 20 kilograms of body weight, or up to the approximate age of 4 years, children respond more readily to digitalis than do children above this weight and age. It would seem that older children with normal hearts require a larger amount per unit of body weight than is necessary to produce an effect in

adults with heart disease. There is considerable variation in the amount of digitalis necessary to bring about a response in the heart of children. They noticed vomiting to be one of the early signs of the effect from digitalis administration, often occurring before there were any alterations in the electrocardiogram. Changes in the eltcarocardiogram were not constantly found in all the cases in which a digitalis effect was obtained. The most common change observed in this group of children was the appearance of a sinus arrhythmia. Alteration in the size and direction of the T wave occurred in a small number of all the cases.

Pedunculated Tuberculosis of Peritoneum.—A case of pendulous tuberculosis of the peritoneum is reported by Ray, and a review is given of the only other two cases of human pedunculated peritoneal tuberculosis recorded in the literature. The condition is compared to the lesion in tuberculosis of the serous membranes of cattle designated as "perlsucht," with which it is pathologically identical. An attempt is made to associate with the process the bovine type of tubercle bacillus, and there follows a discussion of the relative virulence and importance of the bovine and human types of tubercle bacilli in different forms of human tuberculosis, together with a brief review of the methods for differentiation of the two types of bacilli. The pathology is discussed from the standpoint of representing the intestinal equivalent of the multiple benign sarcoids of the skin; in reality, low grade tuberculous infections, better termed nodular cutaneous tuberculomas.

American Journal of Roentgenology, New York

August, 1921, **8**, No. 8

Roentgen-Ray Examination of Chest and Roentgen-Ray Classification of Pulmonary Tuberculosis. H. K. Dunham, Cincinnati.—p. 427.
Gunshot Injuries to Brain. Report of Eleven Cases with Special Reference to Roentgen-Ray Localization Findings. H. Swanberg, Quincy, Ill.—p. 445.
Monometer and Flow Volumeter for Transuterine Peritoneal Inflation to Determine Patency of Fallopian Tubes in Cases of Sterility. I. C. Rubin, New York.—p. 459.
Multiple Osteochondroma. B. P. Widmann, Philadelphia.—p. 462.
Superradiation and Delayed Reactions. A. Soiland, Los Angeles.—p. 466.
Roentgen-Ray Treatment of Acne Vulgaris. J. M. Martin and C. L. Martin, Dallas, Tex.—p. 468.
Roentgen Ray in Dermatology. C. G. Lane, Boston.—p. 476.
*Adenocarcinoma of Stomach; Gastric Ulcer. R. D. Carman, Rochester, Minn.—p. 480.
*Hemangioma of Duodenum. R. D. Carman, Rochester, Minn.—p. 481. Case of Osteoma. J. H. Lambert, Lowell, Mass.—p. 483.

Gastric Cancer and Ulcer Not Shown by Roentgen Ray.—Carman reports two cases, an adenocarcinoma of the stomach; and a gastric ulcer not shown by the roentgen ray, but found at operation.

Hemangioma of Duodenum.—The case of hemangioma of the duodenum reported by Carman is the first that has been encountered in the Mayo Clinic. A woman, aged 22, complains of having had chronic dyspepsia since childhood. The milder spells were characterized by nausea and marked frontal headache followed by sour emesis and relief. The roentgen-ray examination revealed a negative stomach. The duodenum was shadowed as a ring with a translucent center, suggesting the presence of a polypoid growth. The same appearance was seen at a second examination. The pylorus was wide open; just below the pylorus in the first part of the duodenum was a tumor 7 cm. by 5 cm. completely filling the duodenum and with a sessile attachment to the duodenal side of the pyloric ring. The tumor was easily enucleated through a transverse incision on the anterior surface of the duodenum. Pathologic report: tumor of the duodenum, hemangioma.

American Review of Tuberculosis, Baltimore

August, 1921, **5**, No. 6

*Reinfection in Tuberculosis. Experimental Arrested Tuberculosis and Subsequent Infections. E. R. Baldwin and L. U. Gardner, Saranac Lake, N. Y.—p. 429.
Some Causative Factors of Pulmonary Tuberculosis. L. Brown.—p. 518.

Reinfection in Tuberculosis.—It is evident, Baldwin and Gardner state, from what has been presented in the experimental and pathologic study on man and animals that successive infections do occur, and that the first often modifies the course of the later ones. In comparison with the ease with which a primary infection is acquired, the later inhaled and ingested bacilli are resisted more or less strongly by the relative "immunity from infection." In applying these principles to human tuberculosis many evidences of confirmation may be noted, which, in the main, are satisfactory. There are reasons to suspect mild infections, both as a quantity and virulence, occurring infrequently, but, by a cumulative effect, ultimately arousing the disease process. The earliest exogenous reinfections are probably often well resisted and may produce no noticeable symptoms. Good physiologic functions combined with the immunity from infection tend to ward off further infection after adult age is reached. Should the conditions be otherwise than favorable, or the infection frequent or potent, disease results. The authors discuss the unlikelihood of massive infections by inhalation, and the doubt about other ways of reinfection. From the very small quantities taken in at one time and the slow development of the disease they are inclined to the theory of cumulative infection during childhood and youth. The majority of individuals who are to develop pulmonary tuberculosis for the first time after 20 have already acquired it to a degree. Were it possible to discover these potentially diseased cases, who may or may not break down, there would be but a small percentage not accounted for among the victims of tuberculosis in civilized countries. It is virtually impossible to associate many cases of clinical tuberculosis in adults with a recent exogenous source of infection, except under family exposure. Even in family disease, as is well known, the patient often develops the first recognized symptoms years after the death of the relative. The town or city dweller is a survivor in the sense that he has reached maturity in the face of more or less inevitable exposure to human and bovine infection. The lesson to be learned and applied is that hand in hand with efforts to safeguard the young from infection more attention should be paid to safeguarding both young and old from disease. Without sputum and dairy hygiene the supply of dangerously infected young people will be kept up; without earlier diagnosis, education, and favorable conditions of life for the prospective victims, clinical tuberculosis will continue at an irreducible minimum.

Archives of Surgery, Chicago

September, 1921, **3**, No. 2

*Perforating Hemorrhagic (Chocolate) Cysts of Ovary. Their Importance and Especially Their Relation to Pelvic Adenomas of Endometrial Type ("Adenomyoma" of Uterus, Rectovaginal Septum, Sigmoid, etc.). J. A. Sampson, Albany, N. Y.—p. 245.
*Is Paget's Disease of Nipple Primary or Secondary to Cancer of Underlying Breast? A. R. Kilgore, San Francisco.—p. 324.
*Squamous Cell Carcinoma of Urinary Bladder. A. J. Scholl, Jr., Rochester, Minn.—p. 336.
Cancer of Breast. B. B. Davis, Omaha.—p. 348.
*Observations Based on a Study of Injuries to Elbow. I. Cohn, New Orleans.—p. 357.
Torsion of Cecum and Ascending Colon. J. Homans, Boston.—p. 395.
*Blood Nitrogen Estimations in Genito-Urinary and Abdominal Conditions. J. W. Vaughan and P. F. Morse, Detroit.—p. 405.
Function in Relation to Transplantation of Bone. S. L. Haas, San Francisco.—p. 425.
*Composition of Appendiceal Concretions. M. E. Maver and H. G. Wells, Chicago.—p. 439.

Perforating Hemorrhage Cysts of Ovary.—According to Sampson .perforating hemorrhagic cysts of the ovary occur most frequently in women between 30 years of age and the menopause. In the twenty-three cases reported by Sampson, only two patients were under 30 and the oldest was 47. It is quite a common condition, probably occurring in nearly 10 per cent. of the women of these age limits who require abdominal operations for the relief of pelvic disease. The cysts are usually small, between 2 and 4 cm. in diameter, occasionally less than 2 and also occasionally larger than 4 cm. They are quite frequently bilateral, as in eight of the twenty-three cases. At operation the cyst or ovary is found to be adherent, and in freeing it the "chocolate" contents escape because a previous perforation, which had been sealed by whatever structure the ovary had become adherent to, is reopened or the cyst is torn. Adhesions, due to the "irritating" action of the material which had previously escaped from the ovary, are always present, and these vary greatly in location, density and extent. They may be found in any of the natural pockets and folds of the pelvis where such material would be apt to lodge, and especially in the culdesac. When slight, they simulate the adhesions resulting from pelvic peritonitis of tubal origin; on the other hand,

the adhesions in the culdesac may be accompanied by such a marked reaction as to resemble malignancy. The histologic findings in these cysts vary in different specimens and in different portions of the same cyst. Sampson has never found these cysts in women after the menopause. Histologically, the epithelial lining of the ovarian hematomas is similar to that of the uterine hematomas, due to the retention of "menstrual" blood, often present in "adenomyoma" of the uterus. The fact that material escaping from the ovarian hematomas may give rise to the development of adenoma of endometrial type in the tissues thus soiled is further proof that these hematomas contain "endometrial" tissue.

Paget's Disease of Nipple.—Three cases are reported by Kilgore demonstrating that Paget's disease is usually primary to cancer of the breast. In one of these cases no change whatever had as yet occurred in the breast, and in two cases the early changes of what was probably duct carcinoma had begun when the breast was excised. A fourth case is reported in which all the evidence of histology and pathology points to a reversal of this order, the cancer in the breast apparently originated first, and was followed by Paget's disease of the nipple. If the deductions in this case are correct, then both schools in the controversy over the primary or secondary nature of Paget's disease have been right, since either order of events may occur.

Squamous Cell Carcinoma of Bladder.—Three of the six patients reported on by Scholl were seen in an operable condition an average of three months after the first appearance of symptoms. One of these had a recurrence four months after operation, and died eight months later; one died six months after operation, and one, the only patient who did not die from the disease, is living and well nine years after operation. The other three patients had inoperable tumors. In the inoperable cases, there had been symptoms referable to the carcinoma for an average of twelve months. Two of the six patients had histories of urinary trouble with undoubted cystitis for more than twenty-eight years. In only one patient was the tumor complicated by stone formation. The average age of the patients was 46 years, strikingly lower than the general average age of patients with carcinoma of the bladder. The incidence of sex, four women and two men, is also exceptional and contrary to the usual occurrence in which the male outnumbers the female three or four to one. One case indicates that a permanent cure is possible. The tumor in this case was highly malignant. An early resection was successful in spite of the local extension and the extreme malignancy of the tumor. In most cases the insidious onset and the rapidity of the growth make squamous cell tumor of the bladder an exceptionally dangerous disease.

Injuries to Elbow.—Cohn is of the opinion that three things are necessary in the treatment of fractures: a clear knowledge of the normal on the part of the roentgenologist; a more careful examination of the patient, to eliminate unnecessary work, and, last, a closer cooperation between the roentgenologist and surgeon which will prove helpful to all. A suggestion from the roentgenologist that, as a result of his study of the picture, he would make a prognosis of a deformity if the fracture is allowed to remain in the position that it was in when the patient was sent to him, will prevent many future disabilities and deformities.

Blood Nitrogen Estimations in Prostatic Obstruction.—In general, Vaughan and Morse assert, it can be stated that a low blood nitrogen in prostatic obstruction may be used as a guide as to the advisability of a one-stage or a two-stage operation. However, other factors than this must be taken into consideration, and it is the author's belief that the cause of death in many cases, given as uremia following prostatectomy, is erroneous in the extreme, it being due to a low grade infection solely.

Composition of Appendiceal Concretions.—The composition of three collections of concretions found in human appendixes was found by Maver and Wells to vary somewhat, but, in general, there was a similarity in the make-up of each lot of concretions. They contain about half their weight soluble in fat solvents, this material being chiefly soaps, but with considerable koprosterol and little cholesterol. Of the soaps but a very small proportion seems to have been calcium soaps. About one fourth of the total weight was composed of inorganic material, chiefly calcium phosphate. About one fifth of the material was organic residue, mostly vegetable fiber, indicating that some part of the appendiceal concretions, at least, comes from the cecum. Probably the rest of the concretion is deposited from the walls of the appendix, since the bowel secretions are known to contain much fatty material and calcium.

Arkansas Medical Society Journal, Little Rock

August, 1921, **17**, No. 3

Recent Limitations in Operative Gynecology. F. J. Taussig, St. Louis. —p. 57.

Boston Medical and Surgical Journal

Sept. 1, 1921, **185**, No. 9

Extrapleural Thoracotomy for Advanced Unilateral Pulmonary Tuberculosis. Report of Case. W. Whittemore and G. L. Chaffin, Boston. —p. 249.
End-Results in Cancer Cases; Cancer of Breast. R. B. Greenough and C. C. Simmons, Boston.—p. 253.
Myxedema Following Treatment of Graves' Disease with Roentgen Ray. M. Seymour, Boston.—p. 261.
Progress in Surgery. E. H. Risley, Waterville, Maine.—p. 262.

Iowa State Medical Society Journal, Des Moines

July 15, 1921, **11**, No. 7

Relation of Family Doctor to Specialist, General Public and Future of Medicine in Iowa. D. Macrae, Jr., Council Bluffs.—p. 227.
Symposium on Surgical Diagnosis. I. Case History. O. C. Morrison, Carroll.—p. 234.
Id. II. Physical Examination. J. C. Hancock, Dubuque.—p. 236.
Id. III. Laboratory Procedures. F. H. Lamb, Davenport.—p. 244.
Id. IV. Roentgen-Ray Examination. T. A. Burcham, Des Moines. —p. 250.
Id. V. Summary: Final Correlation. C. S. James, Centerville.—p. 254.
Acidosis. T. Byrnes, Atlantic.—p. 257.

Journal of Industrial Hygiene, Boston

September, 1921, **3**, No. 5

Fatigue and Error in a Mental Occupation. J. P. Baumberger.—p. 149.
Work Chair. A. B. Emmons and J. E. Goldthwait, Boston.—p. 154.
Practical Hygienic Efficiency of Palmer Apparatus for Determining Dust in Air. H. F. Smith and M. Izard, Philadelphia.—p. 159.
Physical Education from Standpoint of Industrial Physician. R. W. Elliott, Cleveland.—p. 168.

Journal of Laboratory and Clinical Medicine, St. Louis

August, 1921, **6**, No. 11

Accurate Method for Clinical Determination of Early Arterial Disease. H. Brooks, New York.—p. 597.
*Ventilation, Weather and Common Cold. G. T. Palmer, Detroit.—p. 602.
Review of Ninety-Four Necropsies, with Special Reference to Pneumonias. G. W. Covery, Lincoln, Neb.—p. 611.
*Method for Determination of Blood Volume. E. Franke and S. R. Benedict, New York.—p. 618.
Standard Method for Preparing and Standardizing Lipoidal Antigens for Wassermann Test. L. G. Hadjopoulos, New York.—p. 624.
Simple Device for Demonstration of Heart Block in Student Laboratory. N. B. Eddy, Edmonton, Canada.—p. 635.
Exposure of Ciliary Ganglion in Dog for Use in Experimental Work. A. R. Cooper and J. T. Groot, Chicago.—p. 639.
Value of Ross-Jones Test on Bloody Spinal Fluid. S. M. Feinberg, Chicago.—p. 642.
Training and Proper Recognition of Laboratory Technician. R. B. H. Gradwohl, St. Louis.—p. 644.

Ventilation, Weather, and Common Cold.—Palmer presents a study of the prevalence of respiratory affections among school children and their association with school ventilation and the seasonal changes in weather.

Blood Volume Determination.—On account of the difficulties at present in obtaining reliable dye preparations which do not penetrate cells or tissues, it occurred to Franke and Benedict that hemoglobin might be used with advantage in the determination of blood volume. Hemoglobin is nontoxic, and owing to its high molecular weight and intense coloring power should be admirably adapted for use where a nondiffusible colored product is desired. Experiments have shown that oxyhemoglobin does not penetrate the red cells to the slightest degree, and remains in the circulation without detectable alteration for periods of time quite sufficient to allow of thorough mixing with the blood and removal of samples for analysis. The final concentration of hemoglobin in the plasma is readily determined by comparison in a colorimeter with a portion of the solution injected, after suitable dilution. It is unnecessary to use purified hemoglo-

bin for the determination. Results are exactly as satisfactory where a solution obtained by laking corpuscles with water, followed by addition of enough salt to make the whole solution isotonic, is employed. The hemoglobin employed need not come from the same species of animal as the one used in the experiment. Injection can be made as rapidly as possible without detectable effect on the general condition of the animal. The principle of the method is the introduction into the blood stream of a solution of hemoglobin, prepared by laking blood, and the subsequent determination colorimetrically of the concentration of this hemoglobin in the plasma by comparison with a suitable standard mixture of hemoglobin and plasma. The volume of the corpuscles in the blood must also be determined. This can be done either with a hematocrit, or by a method described which depends on addition of hemoglobin solution to whole blood, and the subsequent determination of the hemoglobin concentration in a portion of the plasma.

Kentucky Medical Journal, Bowling Green

September, 1921, **19**, No. 9

Congenital Club Foot. W. B. Owen, Louisville.—p. 557.
Intra-Urethral Chancre: Case Report. C. G. Hoffman, Louisville.—p. 561.
Bronchial Asthma: Case Report. J. W. Bruce, Louisville.—p. 563.
Orthopedic Treatment of Infantile Paralysis. B. S. O'Brien, Louisville.—p. 566.
Congenital Hypertrophic Pyloric Stenosis. Case Report. J. G. Sherrill, Louisville.—p. 572.
Bone Infections. B. W. Bayless, Louisville.—p. 577.
Nonunion of Abdominal Wound. M. Casper, Louisville.—p. 579.
Rupture of Spleen: Splenectomy. Case Report. G. P. Grigsby, Louisville.—p. 581.
Case of Lethargic Encephalitis Complicated by Syphilis and Goiter. W. E. Gardner, Louisville.—p. 583.
Fourth Venereal Disease. C. W. Jekerson, Louisville.—p. 586.
*Carcinoma of Papilla of Vater Treated by Radium. I. Abell, Louisville.—p. 589.
Gunshot Wounds of Abdomen. Report of Cases. C. Farmer, Louisville.—p. 591.
Appendicitis. W. E. Fallis, Louisville.—p. 597.
Diagnosis of Incipient Pulmonary Tuberculosis. W. T. McConnell, Louisville.—p. 601.
Venereal Disease at State Reformatory. E. C. Roemle, Frankfort.—p. 604.
Refraction of Eye. A. D. Banfield, Catlettsburg.—p. 606.
Endometritis. A. R. Kempf, Olmstead.—p. 609.
Two Cases of Hemorrhage Following Peritonsillar Abscess. W. J. Thomasson, Newport.—p. 611.

Radiumtherapy of Carcinoma of Vater's Papilla.—In the case cited by Abell the duodenum was exposed, mobilized and opened; 25 mg. radium in two tubes was anchored immediately against the growth by passing a needle containing No. 10 plain gut, superficially through the mucous membrane above and below the growth and tying these two over each end of the capsules or tubes containing the radium. The capsules were attached to strands of heavy braided silk which were brought out of the mouth by means of a stomach tube passed in the usual manner and guided through the pylorus to the incision in the duodenum. The duodenum and abdomen were then closed. The radium was allowed to remain twelve hours, at the end of which time it was readily removed through the mouth by traction on the silk strands. The method demonstrates that radium in almost any sized dose can be applied directly to some types of internal cancer which are not amenable to ordinary surgical removal.

Military Surgeon, Washington, D. C.

September, 1921, **49**, No. 3

Dispersion of Bullet Energy in Relation to Wound Effects. L. B. Wilson.—p. 241.
Neurology of Syphilis. R. Sheehan.—p. 252.
Syphilis and Venereal Disease: A Service Liability. C. S. Stephenson.—p. 263.
Military Neuroses: General and Fundamental Etiology. S. Wolfe.—p. 272.
Suggestions for Treatment of Nerve Injuries. K. W. Ney.—p. 277.
Vincent's Angina. D. F. Elmendorf.—p. 287.
Model Sanitary Order. C. W. Decker.—p. 292.
Etiology of Influenza. M. W. Hall.—p. 300.
Case of Anthrax. F. D. Francis.—p. 306.
Fractured Sesamoids as Source of Pain Around Bunion Joint. J. C. Brugman.—p. 310.
Postwar Medical Conditions Among Armenia Refugees in Southern Turkey and Syria. R. A. Lambert.—p. 314.
Perforating Wounds of Eye. Use of Conjunctival Flaps. First Aid in Battle Injuries of Eye. Indications for Removal of an Eye. H. V. Würdemann.—p. 333.

Nebraska State Medical Journal, Norfolk

September, 1921, **6**, No. 9

Campaign Against Cancer. F. C. Wood, New York.—p. 261.
Early Diagnosis of Cancer of Digestive Tract. G. W. Covey, Lincoln.—p. 267.
Earlier Diagnosis of Cancer of Breast. D. C. Hilton, Lincoln.—p. 269.
Cancers of Skin and Mucous Membrane. A. F. Tyler, Omaha.—p. 274.
Precancerous Lesions of Uterus. P. Findley, Omaha.—p. 278.
Radiotherapy in Cancer. D. T. Quickly, Omaha.—p. 280.
Roentgen Ray, Radium and Surgery in Treatment of Cancer. R. L. Smith, Lincoln.—p. 282.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 285.

New Jersey Medical Society Journal, Orange

September, 1921, **18**, No. 9

Survey of Modern Medicine. Newer Methods in Diagnosis and Therapy. M. J. Synnott, Montclair.—p. 269.

New York Medical Journal

Sept. 7, 1921, **114**, No. 5

Peritonitis. J. B. Deaver, Philadelphia.—p. 257.
Surgical Conditions of Stomach. J. J. Gilbride, Philadelphia.—p. 261.
*Action of Various Salts and Other Substances on Liver After Their Introduction in Duodenum. M. Einhorn, New York.—p. 262.
*Clinical Gastric Analysis with Detail of Method and Consideration of Maximum Information to Be Obtained. B. B. V. Lyon, H. J. Bartle and R. T. Ellison, Philadelphia.—p. 272.
*Personal Experiences with Nonsurgical Biliary Drainage. J. Friedenwald and T. H. Morrison, Baltimore.—p. 280.
Gastroenterologic Gleanings from Mayo, Sippy and Boston Clinics. S. Wendkos, Philadelphia.—p. 285.
Interesting Gastric Cases. H. F. Graham, Brooklyn, N. Y.—p. 289.
Abdominal Cases. V. Kenerson, Buffalo.—p. 291.
Spontaneous Pneumoperitoneum Demonstrated by Roentgen Ray in Acute Gastro-Intestinal Perforations. W. A. Kellogg, New York.—p. 294.
Diagnosis and Treatment of Gallbladder Disease. A. O. Wilensky, New York.—p. 295.
Nonsurgical Drainage of Gallbladder as Aid in Roentgen Ray Diagnosis of Gallstones. S. Weis, New York.—p. 297.
Carcinoma of Stomach Simulating Pernicious Anemia. A. E. Oliensis, Philadelphia.—p. 298.

Action of Salts on Liver.—Einhorn asserts that Lyon's assumption of the different sources of bile, as judged by the color, does not seem to be correct. Inasmuch as the magnesium sulphate and other liver stimulants increase the flow of bile from the liver and drive it, so to say, quickly and directly into the duodenum, there will be after these substances a bile product from the liver direct containing very little if any bile from the gallbladder. In the fasting condition and with any previous stimulation the aspiration succeeds in obtaining what little bile there is in the duodenum from the liver and the gallbladder, or there seems to be more chance for the appearance of some gallbladder bile when the flow of liver bile is not extensive. In practicing bile examinations in the fasting state of the patient, for the last ten years or so, Einhorn found this to be the case. Diagnostically, many more valuable hints regarding gallbladder lesions can be found from the examination of the natural fasting bile than from the bile obtained after the stimulation by magnesium sulphate. In case of jaundice, however, in which no bile is found in the fasting state, a liver stimulant may be injected into the duodenum, in order to ascertain whether the increased flow of bile from the liver is still able to push through some of its products into the duodenum. In fact, in a number of such cases of chronic jaundice with no bile in the duodenum while fasting the magnesium sulphate caused the appearance of some bile after a short time, thus showing that the common duct occlusion was not complete. In these cases the magnesium sulphate or peptone or glucose test is of diagnostic aid.

Fractional Method of Gastric Analysis.—Lyon, Bartle and Ellison favor the fractional method of gastric analysis. They emphasize the need of investigation into the associated findings of the stomach, other than the acid values. These include the presence of mucus and bile, and the addition of the pathologic products, such as bacteria, pus, blood and tissue juices. These associated findings all have a direct influence on the interpretation of the acid curves and also yield much information as to the intragastric and extragastric pathology. They give a detailed description of their method of performing the actual test. Each patient is given typewritten instructions preparatory to presenting himself for a gastric analysis. Fifteen minute extractions are now made over an average period of two hours, making eight extractions in all.

Diagnostic Value of Nonsurgical Biliary Drainage.—Friedenwald and Morrison consider the method of biliary

drainage, as instituted by Lyon, a valuable aid in the diagnosis of gallbladder affections. It is particularly valuable in that it permits of diagnosing these conditions early before evidence of complications have manifested themselves. It presents an important means of determining the presence of focal infection in the gallbladder. This method furnishes a means of affording definite relief in certain biliary affections for which hitherto radical measures have been required. It is an extremely valuable aid in the treatment of catarrhal jaundice, biliary stasis, and gallbladder infections, and is helpful in relieving the infection which may still remain following gallbladder operations.

Ohio State Medical Journal, Columbus

Sept. 1, 1921, **17**, No. 9

*Ruptured Gastric Ulcer: With Case Reports. C. T. Souther, Cincinnati.—p. 605.
Slow Perforations of Abdominal Viscera. S. D. Foster, Toledo.—p. 609.
*Ulcer and Cancer of Stomach and Ulcer of Duodenum. G. W. Crile, Cleveland.—p. 611.
Obstetric Obligations. M. A. Tate, Cincinnati.—p. 613.
Vaginal Cesarean Section: Its Field of Usefulness, with Case Report. L. E. Leavenworth, Canton.—p. 617.
Progress in Treatment of Syphilis. A. Ravogli, Cincinnati.—p. 619.
Syphilis in Its Relation to Medical and Surgical Diagnosis. J. D. Dunham, Columbus.—p. 623.
*Tumors of Corpus Callosum. E. M. Baehr, Cincinnati.—p. 626.
*Intravenous Administration of Protein in Treatment of Arthritis. C. W. Waggoner, Toledo.—p. 628.
Death Following Operation of Tonsillectomy with Reference to Motor Driven Apparatus for Anesthesia. I. G. Clark, Columbus.—p. 631.

Ruptured Gastric Ulcer.—Souther reports four cases of ruptured gastric and duodenal ulcer in which he operated and the patients recovered.

Ulcer and Cancer of Stomach and Duodenum.—Crile is convinced that no absolute differential diagnosis between cancer and ulcer is possible before operation; nor at the operation except by the pathologist; nor by the pathologist in certain bordeline cases. Irrespective of operative treatment, the dietetic management of all ulcer cases is an essential before and after surgical intervention. It has been found that the fainting point can be used clinically to arrest hemorrhage from gastric or duodenal ulcer. In patients, exhausted by long standing ulcer or cancer, conservation and restoration of bodily economy must be secured by restoration and preservation of the acid-alkali balance of the cells, particularly of the brain and liver; maintenance of an adequate circulation; as well as a minimizing and, where indicated, a dividing of the trauma of operation. Crile summarizes his views in a series of surgical suggestions, the following of which have enabled him to reduce the mortality rate in stomach operations, gastro-enterostomies and resections, to 1.5 per cent.

Tumors of Corpus Callosum.—In the case coming under his observation Baehr was able to determine the presence of a soft, nonexpansible cerebral neoplasm. This tumor was very strictly to the corpus callosum and hence its symptom complex did not include those symptoms due to an extension of the process and to pressure on distant parts. While Bristowe's syndrome still stands, Baehr is inclined to modify it as follows: Tumors of the corpus callosum show disorders of intelligence; absence or insignificance of signs of increased intracranial pressure; absence of definite evidence of tumor of the frontal lobe and absence of paralytic or convulsive phenomena, until by encroachment motor and sensory pathways or cranial nerves are affected.

Intravenous Protein Therapy in Arthritis.—Waggoner is convinced that intravenous vaccine therapy produces marked results in the recipient as evidenced by chill, fever, sweating and change in the blood picture. The average dose for inauguration of treatment is from 20 to 50 millions of dead typhoid bacilli, depending on age, size and robustness of the individual patient. Diet should be regulated and assisting measures should be employed. The case must be one of acute or chronic infective joint lesion. In acute cases there is marked improvement and cure in 50 per cent. of cases after from one to five injections given each third to fourth day and in these cases there have been no complications. In 50 per cent. of acute cases with recurrences, if foci of infection have been destroyed, more treatment will usually clear them up; 10 per cent. of chronics are made practically normal; 80 per cent. are improved and 10 per cent. remain unchanged.

Public Health Journal, Toronto

August, 1921, **12**, No. 8

Etiology of Tuberculosis. W. J. Dobbie.—p. 337.
Healthy Child: Our Greatest National Asset. H. Spohn.—p. 352.
Provincial Public Health Nursing in Manitoba. E. Russell.—p. 360.

Tennessee State Medical Ass'n Journal, Nashville

August, 1921, **14**, No. 2

Ruptured Uterus; Twisted Ovarian Pedicle; Dermoid Cyst Blocking Pelvic Outlet. E. T. Newell, Chattanooga.—p. 121.
Gastric and Duodenal Ulcer. J. T. Moore, Algood.—p. 126.
Modern Surgical Operation. C. N. Cowden, Nashville.—p. 130.
Medical Society. J. A. McCulloch, Nashville.—p. 134.
Vertigo. J. J. Shea, Memphis.—p. 138.
Tonometers and Tonometry. J. Green, Jr., St. Louis.—p. 141.
Value of Determination of Basal Metabolism; Report of Cases. W. H. Cheney and F. B. Bogart, Chattanooga.—p. 149.
Enlarged Prostate: Its Diagnosis and Management. W. D. Haggard and H. L. Douglass, Nashville.—p. 153.

Texas State Journal of Medicine, Fort Worth

August, 1921, **17**, No. 4

Congenital Hypertrophic Pyloric Stenosis. C. W. Flynn, Dallas.—p. 199.
Vomiting in Infancy. H. L. Moore, Dallas.—p. 202.
Cerebral Spastic Paralysis, with Case Reports. E. G. Schwarz, Fort Worth.—p. 204.
Focal Infection in Children. M. C. Harper, San Antonio.—p. 208.
Problem in Municipal Sanitation. V. M. Ehlers, Austin.—p. 211.
Malarial Control in East Texas. J. M. Travis, Jacksonville.—p. 213.
Symptoms and Differential Diagnosis of Exanthems. A. S. Garrett, Weatherford.—p. 215.
Relationship of Public Health Nurse and County Health Officer, as Pertains to Public Health Nursing. E. G. Pinder, St. Louis.—p. 216.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 20, 1921, **2**, No. 3164

Changes Induced in Blood Constituents by Radiations. S. Russ.—p. 268.
Radiation in Treatment of Diseases of Blood. G. L. Gulland.—p. 271.
Surgical Diathermy. E. P. Cumberbatch.—p. 275.
Section of Ambulance and Red Cross. J. Cantlie.—p. 281.
Case of Trypanosomiasis Treated by Intrathecal Serum. J. W. H. Eyre and C. H. Marshall.—p. 284.
*Glycosuria of Malarial Origin. A. Castellani and J. G. Willmore.—p. 286.
*Sloughing of Lower Uterine Segment Following Placenta Praevia: Laparotomy: Recovery. J. R. C. Canney.—p. 286.
Lethargic Encephalitis with Severe Hiccough at Onset. A. Howell.—

Glycosuria of Malarial Origin.—A case of malarial glycosuria and one of malarial diabetes are recorded by Castellani and Willmore. In the first case quinin caused the disappearance of the glycosuria. At no time was the patient put on antidiabetic diet, and there was no restriction of his carbohydrate intake. There can be little doubt, therefore, that the disappearance of the sugar was due to the administration of quinin. The second case shows that there is a form of glycosuria of malarial origin, and that this condition may, at times, become so severe as to simulate true diabetes, the patient losing flesh, becoming very weak, complaining of thirst and hunger, and passing a large amount of saccharine urine. The glycosuria in this case was cured by the administration of quinin in full doses without any dietetic treatment.

Placenta Praevia Causing Sloughing of Lower Uterine Ligament.—Canney's case was one of infection of the placental site, aided, possibly, by its low position in the uterus, followed by a gradual sloughing of the uterine wall at the placental site, and secondary hemorrhage therefrom. A coil of small intestine lying in Douglas' pouch became adherent and eroded, and the infection spreading produced pelvic peritonitis and pelvic abscess. Although the bacteriology of the case was not worked out, the strong presumption is that it was an infection by *B. coli-communis*.

Aug. 27, 1921, **2**, No. 3165

Diagnosis and Treatment of Cystitis. J. F. Dobson.—p. 305.
Bladder Growths and Their Treatment. S. MacDonald.—p. p. 310.
*Open Prostatectomy. J. W. T. Walker.—p. 311.
Effect of Health Legislation on Health of People. W. E. Elliott.—p. 313.
Importance of Industrial Medicine to Community. E. L. Collis.—p. 315.
*Luminal Contrasted with Bromid in Epilepsy. F. Golla.—p. 320.
*Recurring Dislocation of Shoulder Joint. T. L. Sandes.—p. 332.
Pruritus Ani. W. F. Somerville.—p. 323.
Ruptured Ectopic Gestation and Uninterrupted Uterine Pregnancy. C. M. Rolston.—p 323

Open Prostatectomy.—In this operation the bladder is distended with fluid and opened and the prostate enucleated with the gloved forefinger of the right hand. A catgut stitch is placed in each lip of the bladder wound and the patient placed in the Trendelenburg position. The bladder retractor is then introduced. The condition of the opening into the prostatic cavity first receives attention. Strips and folds of mucous membrane are picked up with long forceps and clipped away. This trimming at the vesicoprostatic orifice leaves a large oval opening, which fully exposes the interior of the prostatic cavity. The control of hemorrhage in this open operation is usually complete and accurate. This operation is an attempt to bring the control of hemorrhage and the prevention of sepsis in prostatectomy into line with that practiced in other modern surgical operations. It also recognizes the fact that postprostatectomy obstruction at the outlet of the bladder may occur in the hands of the most experienced operators, and it effectually prevents this sequel.

Luminal and Bromids in Epilepsy.—A study of the results recorded by Golla shows that thirty-six out of a total of 125 patients were either not improved or deteriorated under luminal treatment, while the remainder did better under luminal than under bromid. The patients most beneficially affected by luminal were those with fits occurring at frequent intervals, and the patients least affected were those whose fits occurred in bouts at considerable intervals of time. The doses of luminal employed have rarely exceeded 6 grains a day of the sodium salt. The drug is, as a rule, well tolerated, and most patients found that they were far brighter and more cheerful after a change to luminal from bromid treatment. Twelve patients complained of giddiness and drowsiness. Five of these patients showed definite affection of the gait, reeling slightly as if under the influence of alcohol. By diminishing the dose of luminal, Golla was able to secure eventual toleration in all but four patients, who complained so persistently of giddiness that the luminal treatment was suspended. Urticarial rashes appeared in two cases at the onset of treatment, but disappeared when it had been continued for a few days. There has in no case been any sign of the formation of a drug habit, and suspension of the treatment has never given rise to any disturbance. There is a tendency in all cases for the number of fits to increase slightly after the first two months of treatment.

Recurring Dislocation of Shoulder Joint.—Sandes makes an artificial ligament from a strip of fascia lata. It is passed through a hole drilled in the head of the humerus and slung over the clavicle.

China Medical Journal, Shanghai

July, 1921, **35**, No. 4

Studies on Diet of Koreans. J. D. Van Buskirk.—p. 305.
*Postoperative Catheterization in Korea. R. G. Mills.—p. 310.
Obstetrical Experiences in Futsing City, Fukien, China. M. C. Poulter.—p. 331.
Lithiasis at Canton Hospital. J. O. Thomson.—p. 347.
A Year's Experience in Eye Clinic. W. S. T. Neville.—p. 369.
Intestinal Parasitism in South Fukien. J. P. Maxwell.—p. 377.
Communicable Diseases Among Domestic Servants. J. H. Korns.—p. 382.

Postoperative Catheterization in Korea.—Postoperative catheterization in the surgical service of a modern hospital in Korea, Mills says, is a procedure much less employed than under similar conditions in the United States. The urinary mechanism of the average Korean patient is less influenced by disturbing and inhibiting factors, for which certain reasons are suggested: (1) Less highly organized and more stable nervous system, evidenced by better endurance of pain, less nausea and vomiting and lower percentage of individuals with a neurotic temperament. (2) Greater freedom of patients as to movement in bed and the more liberal use of fluids after operation. (3) The establishment of no arbitrary time within which a patient must urinate or be catheterized, each being allowed to void when he feels so inclined, even though this may be twenty-four or more hours after the operation.

Journal of Laryngology and Otology, Edinburgh

July, 1921, **36**, No. 7

Vestibular Face Reflexes. S. Mygind.—p. 321.
Chrondroma of Cricoid. E. B. Waggett.—p. 338.
Lethargic Encephalitis Complicated by Double Chronic Suppurative Otitis Media. J. Don and H. R. Souper.—p. 343.

Lancet, London

Aug. 20, 1921, **2**, No. 8

Objective Study of Neurosis. F. L. Golla.—p. 373.
*Treatment of Imperfectly Descended Testicle. C. A. Pannet.—p. 379.
Gastric Operations: One Hundred Consecutive Cases. L. E. B. Ward.—p. 382.
Experimental Study of Prophylactic Inoculation in Typhus Fever. S. Kusama.—p. 386.
*Basal Metabolism in Menstruation. M. O. P. Wiltshire.—p. 388.

Treatment of Imperfectly Descended Testis.—Pannett states that the future treatment of the incompletely descended testicle will lie in the direction of furnishing the missing stimulus to full development. The ectopic testicle can usually be transferred to the scrotum without endangering its future growth. It is not possible to implant a testicle arrested in the inguinal canal into the scrotum without damage to the organ. The replacement of such a testis into the abdomen will destroy any prospect of ultimate spermatogenesis, while it will not interfere with the internal secretory function. The seminal tubules are unable, apparently, to secrete against the high resistance imposed by the passage through the coni vasculosi and epididymis, unless they are aided by the contractions of the cremaster muscle. Early operation is not recommended. An uncomplicated bubonocele is no indication for operation, but attacks of torsion or strangulation are. When it is impossible to bring down the testicle into the scrotum without endangering its blood supply, orchidocelioplasty is preferable to removal. The technic of the operation is indicated.

Basal Metabolism in Menstruation.—Observations were made by Wiltshire on five subjects. The premenstrual values varied from 32.2 to 40.7; the menstrual from 31.3 to 40.4; the postmenstrual from 31.5 to 40.5, and the intermenstrual values from 32.2 to 40.9. The cost of work and the rate of recovery from work are the same during the menstrual and intermenstrual periods.

Quarterly Journal of Medicine, Oxford

July, 1921, **14**, No. 56

*Unilateral Alterations in Blood Pressure: Differential Blood Pressure Sign. E. F. Cyriax.—p. 309.
*Sugar Tolerance: Variations Found at Different Ages. J. C. Spence.—p. 314.
Incidence of Infections with Pfeiffer's Bacillus Before, During and After 1918 Epidemic. J. W. McLeod, A. G. Ritchie and C. A. Dottridge.—p. 327.
Law of Cardiac Muscle with Special Reference to Conduction to Mammalian Heart. T. Lewis.—p. 339.
*Metabolism of Rickets. L. Findlay, D. N. Paton and J. S. Sharpe.—p. 352.
*Blood Viscosity and Blood Pressure. D. M. Lyon.—p. 398.

Unilateral Alterations in Blood Pressure.—The results found in surgical cases, as given in a previous communication, were fully confirmed by Cyriax, the only exception being that the differential blood pressure sign was also found to occur frequently in operations on structures in the middle line. The differential blood pressure sign is also frequently encountered in unilateral medical cases and in bilaterally equal and constitutional affections. As regards the maximum pressures, differences of 10 mm. and over are found in about 35 per cent., and of 20 mm. and over in about 7 per cent. of all cases. As regards the minimum pressures, similar differences are found, respectively, in about 45 per cent. and 4 per cent. Neglect to exclude the presence of the differential blood pressure sign Cyriax asserts may easily lead to totally erroneous conclusions as to the state of the circulation.

Sugar Tolerance at Various Ages.—It is shown by Spence that the same degree of sugar tolerance is not constant at all ages. It is greatest in infancy, and tends to become lessened as age advances. Of five men over 60 years of age who were examined, four showed a marked diminution of carbohydrate tolerance with consequent hyperglycemia. In children under 3 years of age a low blood sugar curve must be taken as the expression of the normal sugar tolerance; in children above that age the blood sugar curve resembles that of a young adult. In cases of cancer the sugar tolerance was variable. It was normal in the younger and decreased in the older patients. This suggested that the hyperglycemia and decreased sugar tolerance, which have been described in some cases of nephritis and in cancer, are due to the hyperglycemia of old age, which is so frequently present even in

apparently healthy old people. A decreased sugar tolerance was found in a case of active rickets, and in a case of lethargic encephalitis.

Metabolism of Rickets.—Changes in bones, simulating somewhat those in rickets, Findlay and his associates state can be caused by feeding on a calcium low diet, but the condition is of the nature of osteoporosis and not true rickets. The tissues other than bone in experimental rickets in dogs are not deficient in calcium. The calcium content of the blood in experimental rickets in dogs shows no divergence from the normal. No support is given to the view that rickets is due to a deficient supply of calcium to the bone.

Blood Viscosity and Blood Pressure.—It is concluded by Lyon that the viscosity of the blood is a very important factor in maintaining the blood pressure, but that alterations in the thickness of the blood can be easily compensated for by the body, and hence only in exceptional cases (anemia and chronic venous congestion with cyanosis) does this control show itself in an altered blood pressure.

Sei-I-Kwai Medical Journal, Tokyo

August, 1921, **40**, No. 3

Antidotical Activities of Serums Against Organ Toxins. H. Wago.—p. 1.
Effective Principles in Extract of Pituitary Body. Y. Saito.—p. 4.

Medical Journal of South Africa, Johannesburg

June, 1921, **16**, No. 11

Massive Collapse of Lung. C. J. Scholtz.—p. 202.
Problem of Tuberculosis in South Africa. J. A. Mitchell.—p. 205.
Introduction of Schistosoma Mansoni Infection to South Africa. F. G. Cawston.—p. 209.
Roentgen-Ray Findings in a Case of Abdominal Pain Due to Gastric Ulcer. L. E. Ellis.—p. 210.

South African Medical Record, Cape Town

July 23, 1921, **19**, No. 14

Laboratory Aspect of Meningococcal Meningitis; Review of Infection and Immunity. F. S. Lister.—p. 263.
Diagnosis and Treatment of Cerebrospinal Meningitis. A. P. Watkins.—p. 269.
*Case of "Peptic" Ulcer of Intestine after Gastro-Enterostomy. E. O. Ashe.—p. 271.
*Case of Abscess Attached to Liver, and Removed by Operation. J. J. Levin.—p. 272.

Peptic Ulcer of Intestine After Gastro-Enterostomy.—Ten years ago Ashe's patient was operated on for duodenal ulcer, the ulcer being infolded, not excised, and either at that time, or soon after, the appendix was removed. After some years of greater or less abdominal discomfort and pain, the woman was operated on four years ago, anterior gastrojejunostomy being performed. The surgeon intended to do the posterior operation, but found so many adhesions that this was impossible. A few months ago Ashe first saw her for severe abdominal pain and a hard tender spot to the left of the epigastrium. Ashe made a diagnosis of peptic ulcer at or near the anastomosis, which had perforated and was eating through the abdominal parietes. He operated and found his diagnosis absolutely correct. The ulcer was at the line of the old anastomosis, and from this line a double thread, 2 inches long, hung down into the lumen of the bowel. A further inch was imbedded in the stomach wall. The imbedded part was white, the loose part black and curly, and had a large knot on its free end. When the curls were straightened out, this part was 3 inches long. The material looked like celluloid or linen, and the thread was still fairly strong, though it parted with quite a moderate pull.

Abscess Attached to Liver.—Levin cites a case of abscess about the size of an adult cranium, attached to the left lobe of the liver which followed a pimple on the right leg below the knee; the pimple became infected and developed into an abscess, which opened spontaneously under home treatment. The parents noticed a red line running up the leg from the abscess up to the groin, and the boy complained of pain in the abdomen. When the abscess burst the pain in the abdomen ceased for a while. Levin saw him one month afterward. He removed the abscess. He suggests: (1) Either the infection, by means of the veins or the lymphatics, traveled on to the region of the umbilicus, and thence along the round ligament in the falciform ligament directly to the left lobe of the liver. Or—(2) The infection traveled on to the abdomen, then on to the under surface of the diaphragm, and thence by means of the veins of Sappey (or the lymphatics), which form an anastomosis with the portal circulation, on to the left lobe of the liver. Or—(3) The abscess in the liver was in the nature of a metastasis.

Tropical Medicine and Hygiene, London

Aug. 15, 1921, **24**, No. 16

Treatment of Kala-Azar with Some New Antimonial Preparations. U. N. Brahmachari.—p. 213.
Case of Afebrile Quartan Malaria, with Urticaria. J. A. G. Frors.—p. 215.
*Cancer of Liver in African Native. A. Y. Massey.—p. 216.

Cancer of Liver in African Native.—Massey has seen two cases of cancer of the liver in the Belgian Congo. The first was in a Batatela woman, aged 30, who had lived the ordinary native life, her food consisting of maize, kassava, monkey nuts, native greens, palm oil, with now and again a little fish from the local streams, or wild meat such as that of the antelope, buffalo, or small rodents. The tumor was of the ordinary large nodular form and weighed 14 pounds. The second case was in a man, aged about 40, of the same race but far removed as to locality. He was of the ordinary common or garden type of native who has never wandered from his native heath. His tumor was the same as in the first case, and weighed 10 pounds. In each case the weight represents the entire liver. Both tumors were of the multiple nodular form, the umbilicated surface nodules as big as walnuts and easily felt through the abdominal wall. It is evident that they were secondary in origin, although Massey did not find the primary focus.

Tubercle, London

August, 1921, **2**, No. 11

*Resistance to Tuberculosis in Early Infancy. A. Wallgren.—p. 481.
Climatic and Sunlight Treatment of Surgical Tuberculosis. O. Bernhard.—p. 490.
*Can Tuberculosis of Lungs Be Activated by Syphilis? D. Bonnert.—p. 497.

Resistance to Tuberculosis in Infancy.—Wallgren's investigations do not show that young animals are less resistant to tuberculosis than older animals, but rather the contrary. It would also appear that the amount of lymphoid tissue present does not affect the course of infection.

Tuberculosis Activated by Syphilis.—Bonnert cites one case in which an acquired syphilis caused a latent tuberculosis to flare up.

Archives de Médecine des Enfants, Paris

July, 1921, **24**, No. 7

*Aortic Insufficiency in Children. P. Nobécourt.—p. 393.
*Epidemic Meningitis. K. Lewkowicz.—p. 407. Begun No. 6, p. 329.
*Technic for Detubation. T. Reh.—p. 432.
*Umbilical Diphtheria in the New-Born. J. Comby.—p. 437.

Aortic Insufficiency in Children.—Nobécourt gives diagrams from some typical cases of aortic insufficiency entailed by febrile articular rheumatism in children. This type is almost invariably endocarditic, while in adults the insufficiency is generally of arterial origin. In children, there are usually other lesions in the endocardium and pericardium, but when these are slight, the aortic insufficiency may be borne without apparent harm, the hypertrophy of the left ventricle providing compensation. If symptoms from the mitral valve predominate, the outlook is much graver. Careful hygiene, regulation of exercise and digestion, and warding off return of the rheumatism—which are effectual in pure aortic insufficiency—are inadequate for management of the mitral type. This requires treatment for hyposystolia and asystolia.

Epidemic Meningitis.—Summarized on page 891.

Detubation.—Reh compares the various maneuvers in vogue for extraction of the tube in diphtheria.

Diphtheria of the Umbilicus.—Comby comments on Schönfelder's recent report of institutional epidemics of umbilical diphtheria in the newborn, a total of thirty-three cases. Comby suggests that it may occur in other institutions and escape detection.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 22, 1921, **45**, No. 26

Epidemic Encephalitis. P. Ravaut.—p. 1158.
*Diphtheria Antitoxin by the Mouth. E. C. Aviragnet et al.—p. 1160.
*Nervous Reflexions of Dyspepsia. Loeper et al.—p. 1164.
*Acute Tabetic Arthropathy. A. Lemierre et al.—p. 1170.

*Spasmodic Coryza from Chilling. J. Lermoyez.—p. 1183.
*Experimental Hay Fever. Idem.—p. 1187.
The Vegetative Nervous System in Epidemic Encephalitis. Laignel-Lavastine and Coulaud.—p. 1192.
*Pneumococcus Abscess of Lung. Idem.—p. 1195.
*Organotherapy in Sclerodermia. P. Lereboullet.—p. 1200.
*Treatment of Migraine. J. A. Sicard, Paraf and Forestier.—p. 1204.

Diphtheria Antitoxin by the Mouth.—The Schick test never showed the slightest modification when applied to fifteen children given 250 units of diphtheria antitoxin by the mouth or rectum for several days in succession. This and other experiences cited reestablish the inefficacy of antitoxin by this route.

Nervous Reflexions of Dyspepsia.—Loeper and his co-workers explain that as the epithelium of the stomach lining is fragile, the nerve terminals close beneath it are liable to suffer from toxic action and mechanical traction, setting up direct nervous disturbances, possibly remote, as well as by reflex action. The nerves absorb toxins and poisons, and neuritis secondary to some lesion in the gastric mucosa is common. No symptoms followed injection into the dog brain of a filtered emulsion of the pneumogastric nerve from a fasting dog, while accidents followed if the nerve had been taken from a dog during digestion. Other experiments show that the toxin absorbed by the nerve may creep up as far as the medulla oblongata. This warns that when there is a known gastric lesion, substances with an affinity for the nervous system should not be taken into the stomach. Also that existing toxins should be got rid of as soon as possible, and the digestive powers augmented. It is possible, they add, that pepsin has a direct action on the nervous system by this mechanism, instead of being merely a digestive ferment. They refer in conclusion to a previous study of how to give pepsin, which was summarized in these columns, Sept. 17, 1921, p. 975.

Acute Tabetic Joint Disease.—The man of 51 developed an acute pathologic condition in the left knee which proved to be the first manifestation of tabes. In a few days it had caused complete dislocation of the joint, with fever. The diagnosis at first had been lymphangitis or phlebitis. Agonizing pain in the calf had been the first symptom, followed by hot, red edema of the entire leg, high fever and delirium. The local phenomena partly retrogressed but the fever persisted, with retention of urine and atrophy of muscle. The end was hastened by pneumonia in less than two months from the first symptoms. Several similar cases are known, but this is the only one in which the histologic findings were noted. They indicated an acute diffuse syphiloma of the joint with necrosis, the tabes imprinting special features on it; no micro-organisms were found.

Spasmodic Coryza.—Lermoyez presents arguments which seem to demonstrate that coryza may be a manifestation of colloidoclasis like asthma, hay-fever, etc. In the case described, chilling induced the autocolloidoclasis, causing a protein shock. This could be detected by the test hemoclasis before the actual coryza developed. This case confirms the assumption that we must distinguish between the anaphylactic shock and the protein shock. Hay-fever is an example of anaphylaxis from sensitization by a pollen, while spasmodic coryza from chilling belongs in the group of phenomena of the protein shock type.

The Hemoclasic Crisis in Hay-Fever.—Lermoyez brought on the recurring attack of hay-fever in four subjects by having them inhale in winter pollens or horse emanations. In each case the hemoclasic crisis was manifest before the clinical symptoms appeared. They responded with urticaria to inoculation of the skin with the same. In the discussion that followed, Pagniez referred to his success in warding off hay colds by having peptone taken before meals.

Pneumococcus Abscesses in Lung.—The multiple abscesses in the left lung following pneumonia retrogressed under antipneumococcus serotherapy. There was nothing to suggest secondary infection, and the cure was complete in two months during which 710 c.c. of the antiserum had been injected. Netter stated that in this case the subcrepitant râles could be heard with an interval of over 1 cm. between the ear and the skin.

Sclerodermia and Organotherapy.—In the extreme case of sclerodermia described, at the age of 17 the face seemed to be a wax mask; the cheeks looked as if glued to the skeleton. The neck was hard and rigid, and it was impossible to take up a fold in the skin on the chest. The hands were bluish and the fingers immovably pressed against the palms. The upper part of the arms seemed the only regions that escaped the severe sclerodermia. Under treatment three years later with thyroid, pituitary and suprarenal extract simultaneously—all of which seemed to be called for by certain symptoms—plus phosphoric acid and arsenic tonics, marked improvement was realized even in two months, and by the age of 24 the sclerodermic condition and infantilism had entirely disappeared, the general aspect of the young man being now normal.

Treatment of Migraine.—Sicard and his co-workers noticed that when persons subject to migraine were being treated for varicose veins by intravenous injection of sodium carbonate, the migraine did not return afterward. From five to eight injections were made, each 1.5 to 2 gm. of an 80 per cent. solution of the sodium carbonate, and 2 or 3 gm. of sodium bicarbonate was taken before meals. This method was applied first in February, 1921, and there has been no recurrence of the migraine in any instance. Sodium carbonate seems to prevent the hemoclasic, seric, arsphenamin and similar reactions, by its effect in stabilizing the colloids in the serum. This anticolloidoclasic property therefore logically suggests its use in migraine, and possibly also in certain vasomotor, gastro-intestinal and other disturbances of the menstrual period.

Gynécologie et Obstétrique, Paris

July, 1921, 4, No. 1

*Radium in Treatment of Uterine Hemorrhages. H. Pouey.—p. 4.
*Antisyphilis Dispensary in Maternity. A. Couvelaire.—p. 9.
*Protein Therapy in Gynecology. G. Bouché and A. Hustin.—p. 13.
*Protein Therapy in Puerperal Septicemia. E. Lévy-Solal.—p. 48.

Radium in Treatment of Uterine Hemorrhage.—Pouey is convinced that surgical measures in the forty cases he reports would not have given such good results as the radium treatment. The hemorrhages in all were so profuse and frequent that only a mutilating operation could have been considered otherwise. The experiences in the infected cases teach the advisability of attenuating or curing the infection before applying the radium, whenever possible.

Antisyphilis Dispensary in Maternity.—Couvelaire's innovation in this line was mentioned as a news item recently. Instead of waiting to treat inherited syphilis when the child is born, this dispensary gathers the pregnant women and treats the fetus. Attendance at the maternity consultation dispensary does not have the stigma of an ordinary venereal disease station, and the women have flocked to it, and great good has been accomplished in warding off injury of the unborn child.

Treatment Based on Anaphylactic Shock Applied in Gynecology.—Bouché and Hustin have been applying the anaphylactic shock or vasotrophic shock in treatment of certain cases of amenorrhea and to arrest metrorrhagia or regulate menstruation. The method of application differs for each. Ten normally menstruating women were given a subcutaneous injection of 3 c.c. of normal horse serum and fifteen days later 1 or 2 c.c. of serum was injected into the cavity of the uterus with a Braun syringe. In from four hours to four days afterward blood appeared at the vulva, and this oozing of blood continued for from six hours to six days. A similar effect was realized in 3 or 8 women with amenorrhea, and systematic repetition of the procedure reestablished the rhythm of spontaneous menstruation. No effect was apparent in the others. In 15 cases of metrorrhagia the second injection of 1 or 0.5 c.c. of the horse serum was made subcutaneously, and this was repeated at intervals of one or two weeks. At first the sensitizing injection had little or no effect on the metrorrhagia but the anaphylactic shock from the second and later injections displayed a pronounced hemostatic action, although they did not modify an existing menstrual hemorrhage. In 9 cases of irregular menstruation, repetition of the anaphylactic shock seemed to have a stabilizing action, especially during the period preceding the menopause. Leukorrhea also seemed to be favorably influenced. He theorizes to explain the action of this treatment as a kind of anti-anaphylactic vaccination by a series of small repeated shocks.

Protein Therapy in Puerperal Septicemia.—Lévy-Solal reports what he thinks is the first case of puerperal fever to be published in which intravenous injection of 10 c.c. of a 5 per cent. solution of peptone was followed by prompt recovery. This treatment had been given as the last resort the fifteenth day, the condition growing constantly graver.

Lyon Médical, Lyons

July 10, 1921, **130**, No. 13

Acidosis and Coma in Diabetes. G. Mouriquand.—p. 575. Conc'n No. 14, p. 631.

Paris Médical, Paris

July 30, 1921, **11**, No. 31

*Technic for Reconstruction of the Face. J. Molinié.—p. 89.
*Epidemic Meningitis in Two Adults. R. Le Dentu.—p. 95.
*Typhoid Delirium Suggesting Rabies. P. Remlinger.—p. 99.

Reconstruction of the Face.—Molinié expatiates on the numerous advantages of taking the flap to support the nose or the orbit, jaw, etc., from the angle of the scapula instead of using costal cartilage or bone from elsewhere. A few illustrations show some of the fine results he has realized by this means during the last two years.

Epidemic Meningitis.—In the first case the young man apparently recovered under intraspinal serotherapy, but symptoms flared up again after a latent period of two or three weeks and necropsy revealed external hydrocephalus with ventricular distention from hypersecretion. In cerebrospinal meningitis if the head is pushed down while examining for Kernig's sign, this exaggerates the response to the latter. By combining thus the neck test and the Kernig, the response is peculiarly instructive.

Delirium Suggesting Rabies.—The delirium which deceptively simulated rabies in the man of 30 proved to be the initial manifestation of a rapidly fatal typhoid.

Aug. 13, 1921, **11**, No. 33

Digestion Leukocytosis in Infants. H. Dorlencourt et al.—p. 129.
Blood Pressure with Limb in Different Positions. Moulinier.—p. 132.
*The Sugar in the Blood in Chronic Nephritis. H. Bierry, F. Rathery and F. Bordet.—p. 136.

The Blood Sugar in Nephritis.—The research reported and study of the literature seem to show that the content in the plasma of free sugar is of far less import for the prognosis in chronic nephritis than the content of the balance of the total sugar. With the Bierry and Portier method it is possible to estimate this balance, the proteidic sugar, as it is called. Hyperglycemia is common in grave chronic nephritis. The content in proteidic sugar is remarkably stable in different individuals, and the figure is high and constant in certain forms of chronic kidney disease. The technic for its determination is not described here.

Presse Médicale, Paris

Aug. 10, 1921, **29**, No. 64

Convulsions in Young Children. A. B. Marfan.—p. 633.
*Correction of Facial Paralysis. L. Ombrédanne.—p. 636.

Correction of Deformity from Facial Paralysis.—Ombrédanne gives illustrations of a case already summarized in these columns when published elsewhere. A hook device is worn on a back upper tooth, and this hook lifts up the sagging corner of the mouth, restoring the symmetry of the face. The hook does not interfere with mastication, but the patient is advised to take it out at night.

Aug. 13, 1921, **29**, No. 65

Experiences with Vaccine Therapy in Canada. Benoit.—p. 641.
*Technic for Arsphenamin Injections. G. Milian.—p. 643.
Present Status of Acidosis. J. Rouillard.—p. 645.

To Ward Off Accidents with Arsphenamin.—Milian refers in particular to the congestion following immediately the intravenous injection of the drug. As the symptoms resemble those from inhalation of amyl nitrite, he calls it the nitritoid crisis, and warns that acidity, low blood pressure, overfunctioning of the thyroid, nervous haste and fatigue predispose to it. Hence he makes a practice of insisting on an hour at least of repose before he makes the injection. A preliminary injection of epinephrin is indispensable for some. Certain patients bear the arsphenamin perfectly under hospital conditions who have severe nitritoid crises every time when they come from outside for the injections. A tendency to acidity of the humors can be combated with alkalines, Vichy water, etc. At the first signs of an impending nitritoid crisis, he injects 1.5 mg. of epinephrin into the muscles of the thigh, and then draws 3 or 4 c.c. of artificial serum into the same syringe, and injects very gently this rinsing of the syringe, fractioned, into a vein. The first signs of the congestion crisis are acceleration of the pulse and blood-shot conjunctiva, even before the patients complain of prickling in the tongue, fingers, etc., and weakness.

Progrès Médical, Paris

July 16, 1921, **36**, No. 29

*Serotherapy for Hemorrhage. H. Dufour and Y. Le Hello.—p. 333.
Serotherapy for Pulmonary Gangrene. Weil, et al.—p. 336.
Serotherapy and Vaccine Therapy of Pneumonia. Debray.—p. 340.
Serotherapy of Puerperal Fever. Mme. Skrongold-Vinaver.—p. 341.

Serotherapy of Hemorrhage.—Dufour and Le Hello noticed in a case of severe rebellious hemorrhagic purpura that the hemorrhagic tendency seemed to be arrested during the course of serum sickness when serotherapy had been applied. This occurred more than once, and the coagulability of the blood was found much augmented at these times. This casual observation led to the systematic production of symptoms of serum sickness in the animals yielding the antiserum. By this means an antihemorrhage action is secured. They call this the *sérum sérique anti-hémorrhagique*, and here present further testimony as to its value. It is obtained from rabbits given several very small intravenous injections of horse serum. The blood is drawn three weeks after the first injection. The serum from it injected into a guinea-pig sensitizes it at once, and notably increases the coagulating power of the blood, as also in man. About 10 or 20 c.c. are injected subcutaneously in treatment of hemorrhage, and also to ward off hemorrhage, from three to five hours before an operation. Eleven new cases are added to those already published to sustain further its efficacy.

Schweizerische medizinische Wochenschrift, Basel

July 28, 1921, **51**, No. 30

*Cataract from Electric Accident. J. Strebel.—p. 689.
*Joint Anomalies. A. L. Vischer.—p. 696.
*Hypertrophy of Pylorus with Pernicious Anemia. T. Mayeda.—p. 699.
Epidemic Herpes Labialis. K. Mayer.—p. 703.

Cataract.—Strebel applies to cataract in general what has been learned from cataract following electric accidents. He advises to extract an electric cataract as soon as possible, as this will give a usable eye when the cataract starts in the other eye. In one of his cases the electric cataract developed in both eyes in three weeks; in another case the interval was six months in one eye and two years in the other.

Joint Anomalies in the Jaws.—Vischer found numerous evidences of arthritis deformans in a recent collection of anthropologic specimens from New Caledonia and the Loyalty Islands. In seventy-eight of 242 skulls the temporomandibular articulation showed most peculiar and uniform changes, which he is unable to explain.

Hypertrophy of Pylorus with Pernicious Anemia.—Mayeda queries whether the hypertrophy of the pylorus manifest in the case of pernicious anemia described had preceded or followed the development of the pernicious anemia. He cites as instructive Koch's twelve cases of hypertrophy of the pylorus wall with evidences of pernicious anemia in three. This large proportion can scarcely be a mere coincidence.

Aug. 4, 1921, **51**, No. 31

*High Blood Pressure in Nephritis. A. E. Alder.—p. 713.
*Differential Diagnosis of Scarlet Fever. H. Reymond.—p. 719.
Familial Trichophytosis. M. Ganzoni.—p. 722.
Digitalis in Treatment of Aortic Insufficiency. E. Attinger.—p. 725.

Cause and Treatment of High Blood Pressure in Nephritis.—Alder suggests that spasm-inducing proteinogenous substances may form in the blood under the influence of infections, like those generated during a pregnancy. Under normal conditions they are taken care of by the liver, but when the liver is not working properly, they accumulate and the resulting spasm of the smaller vessels sends up the blood pressure. Acute diffuse nephritis in an infectious disease is thus only one symptom of the general toxicosis. It is most evident in the kidneys because these organs are so vitally important. The different amin bases involved explain the differing symptoms, those of pregnancy toxicoses coming

probably from the placenta and those in infectious diseases coming from the bacterial products. The kidney suffers diffusely from their toxic action, but acute focal nephritis is the work of the infection itself. The acute diffuse toxic kidney disturbance with the resulting high blood pressure from the toxic spasm of the minute arteries in the kidneys, is best combated by reducing the task of the kidneys, shutting off both food and fluids for a few days to give the kidneys a chance to recuperate. Thirst can be relieved with a little fruit juice or scraps of ice. If the blood pressure still keeps high, a water test can be given, having 1,000 or 1,500 c.c. of water or weak tea sipped in the course of half an hour. The resulting freshet may overcome the spasm. As the flood of urine follows, the blood pressure drops. If this freshet does not develop and the fluid is retained, energetic measures may be required, venesection, lumbar puncture and strophanthin, but he has never encountered a case in which the water test was followed by serious consequences. In many cases it seemed to have been the only means for warding off chronic nephritis from long persistence of this blocking of the kidneys and the high blood pressure.

Venesection is a valuable adjuvant in rebellious cases as it induces, by reflex action, dilatation of the vessels, especially those in the kidneys, in addition to the direct relief from the withdrawal of fluid. Venesection can be repeatedly applied in all forms of kidney disease with high blood pressure, as also with sclerosis of the kidneys with still satisfactory function. Lumbar puncture is also useful to combat high blood pressure, especially when there is a tendency to uremia and pseudo-uremia. Pilocarpin and papaverin tend likewise to reduce the pressure while they are being taken. The blood pressure is the best index of the gravity of an acute nephritis and the best guide to the treatment required in the individual case and hour. The patient should stay in bed in acute nephritis so long as the blood pressure is high. In view of the discouraging prognosis of chronic nephritis, and of the complete cure possible in acute nephritis under proper treatment, the management of acute nephritis entails grave responsibility.

Differential Diagnosis of Scarlet Fever.—Reymond made 145 injections of normal serum of adults in ninety-seven cases of eruptive diseases and found that the eruption disappeared in this area in 82 per cent. of the seventy-two scarlet fever cases and only in these, and that this extinction phenomenon could not be traced longer than the first three weeks. The serum is injected as if to form a wheal, and the exanthem around it disappears at the eighth to twelfth hour. It is not mere blanching, but actual extinction of the eruption over this area, the *Auslösch-* or discutient phenomenon as it is called.

Policlinico, Rome

Aug. 15, 1921, **28**, No. 33

*Cocain and Cocainism. G. Dragotti.—p. 1100.
Impalement Injury of Rectum. G. Regoli.—p. 1105.
*Fork in Stomach. G. Carossini.—p. 1107.
*Vaccination During Epidemic Smallpox. G. Pollaci.—p. 1108.
Indications for Treatment in Appendicitis and Ileus. P. Gilberti.—p. 1110.

Cocain and Cocain Poisoning.—Dragotti discusses legislation to check the traffic in cocain which is assuming large proportions since the war. Germany is producing synthetic cocain in enormous quantities, and the rate of exchange is rendering the traffic extremely profitable.

Fork in Stomach.—The young woman was trying to remove a fish-bone in her throat, using the handle of a fork, when the fork slipped out of her grasp. Roentgenoscopy showed the fork entirely in the stomach, the prongs pointing toward the heart. Fearing injury from retching, she was kept under the influence of ethyl chorid and then of ether until the fork was removed through a median laparotomy, without apparent injury.

Vaccination During Epidemic of Smallpox.—Pollaci calls attention to recent experiences at Palermo when smallpox was prevailing. Of the 982 vaccinated or revaccinated with positive results, who were all in contact with smallpox cases, only fifteen developed smallpox, and in thirteen of these the symptoms appeared in less than twelve days, showing that infection must have already occurred, and the disease was unusually mild.

July 15, 1921, **28**, Surgical Section, No. 7

Tumor in Accessory Salivary Gland. C. Ansaldi.—p. 277.
*Partial Resection of Kidney. G. Berti.—p. 289. Conc'n.
Oblique Internal Inguinal Hernia in Woman. C. F. Bianchetti.—p. 309.
"Inflammatory Tumors" on the Limbs. M. Giannantoni.—p. 317.

Partial Resection of Kidney.—In this concluding instalment of Berti's report on his experimental research in this line and analysis of clinical experiences, he emphasizes that partial resection of the kidney is not followed by hypertrophy enough to compensate for the loss. When the resection involves the pelvis, there is always danger of a urine fistula. It takes about a year for the circulation to become restored. The other kidney hypertrophies; the tubules lengthen, as a compensating process. He warns that a partial resection should never be attempted in malignant disease, and it is rarely indicated in tuberculosis of the kidney. In his tests on animals he examined the portion left of the kidney and the sound mate after intervals of from seven to 355 days. In a clinical case described the persistence of symptoms and development of new ones after the wandering kidney had been fastened in place, were explained by cicatricial adhesions entailed by the nephropexy. This third of the kidney, the superior pole, was resected, and the portion left was fastened to the twelfth rib. The cure was complete. In 112 cases of partial resection on record, all were cured in the 10 cases of solitary cyst, 3 of hydronephrosis, and all but 2 in the 15 cases of hydatid cysts. In the total number, 86 were cured and 11 died; nephrectomy was required later in 7 cases and a fistula was left in 5. The outcome is not known or dubious in 4. The total 112 cases included 5 cases of cancer, with 2 cures; 15 of tuberculosis, with 7 cures; 15 of simple pyonephrosis, with 14 cures, and 18 horse-shoe kidneys, with 12 cures.

Aug. 1, 1921, **28**, Medical Section No. 8

*Kahler-Bozzolo's Disease. C. Cantieri.—p. 329.
*Acute Necrosis in Liver. G. Dagnini.—p. 343.
*Nitrobenzol Poisoning. L. Paterni.—p. 353.

Kahler's Disease.—Cantieri's patient was a farmer who practically starved himself into Kahler's disease in his efforts to escape from military service. For three or four months he ate only lemons and vinegar and salt fish, refraining from bread, meat and vegetables, taking castor oil frequently, and drinking a decoction of tobacco leaves. He obtained temporary release from service, and for three months took ordinary food, then restricted himself anew to lemons and vinegar for three or four months. By this time the digestive apparatus was much impaired and there were spontaneous fractures and Bruce-Jones proteinuria. Then came intense pains, suggesting left sciatica, with intense pains in the chest. All the bones of the chest seemed soft and yielding, an actual osteomalacia from the deficient nourishment. The man of 36 died from the progress of the Kahler-Bozzolo disease in less than four years from his first attempt to secure exemption by this means.

Acute Necrosis of Liver.—The patch of acute necrosis in the woman of 55 surrounded the central vein of the lobule of the liver while the portal region was intact. There were also a few small calcareous deposits in the liver. The woman died a week after an ovariectomy for a cystic tumor, done under prolonged chloroform anesthesia and followed by persisting vomiting and coma. A certain degree of parenchymatous nephritis evidently enhanced the toxic action of the chloroform, to which Dagnini ascribes the necrosis at a point of hampered circulation.

Nitrobenzol Poisoning.—The odor of bitter almonds explained the severe clinical picture in the unconscious and intensely cyanotic young woman as a hydrocyanic acid or nitrobenzol poisoning. As an hour had elapsed before she reached the hospital, Paterni regarded nitrobenzol as more probable. The nitrobenzol had been taken with suicidal intent. Dimness of vision was the first symptom, then dizziness, vomiting and total blindness, followed by cyanosis, spasms and coma. The stomach was repeatedly rinsed out and camphor and caffein injected, oxygen given, and heat applied to the body. After three hours of this, consciousness began to return, and by the tenth hour vision and hearing. The reflexes were exaggerated. The cyanosis persisted intense until the fourth day, and hemolytic jaundice followed by the sixth day, the erythrocytes dropping to 2,600,000 by the ninth day, but the jaundice had disappeared by the tenth. The

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urine contained numerous hematin crystals, with urobilinuria most pronounced during the febrile period; acetonuria and diacetic acid were also evident. By the thirteenth day the storm had practically passed over although the erythrocytes still numbered only 2,500,000.

Riforma Medica, Naples

July 16, 1921, **37**, No. 29

*Joint Disease in Malta Fever. O. Cignozzi.—p. 674.
*Multiple Sclerosis After Encephalitis. P. de Tommasi.—p. 675.
*Carbon Sulphid in Treatment of Pneumonia. L. Masciangioli.—p. 677.
*Supplementary Gastro-Enterostomy. E. Aievoli.—p. 679.

Hip Joint Complications of Malta Fever.—Cignozzi warns that in every case of hip joint disease which seems to be a typical tuberculous process except that it displays a tendency to heal, agglutination tests should be applied. In two such cases this revealed that the coxopsoitis was a manifestation of Malta fever. Both children recovered the use of their hip joint in two or three months. These and other cases further testify to the efficacy of serotherapy in Malta fever.

Multiple Sclerosis Left by Encephalomyelitis.—In De Tommasi's case the girl of 8 developed encephalomyelitis after influenza, and this in turn was succeeded by multiple sclerosis.

Carbon Sulphid in Treatment of Pneumonia.—Masciangioli has been preaching for some years the value of carbon sulphid in treatment of fibrinous pneumonia. He describes here a striking case in a man of 73 which illustrates the advantages of this treatment in addition to the usual measures. He does not mention the technic, referring for this to his earlier communication in the *Riforma* **22**:37 .

Supplementary Gastro-Enterostomy.—Aievoli discusses the conflicting views as to the advisability of a gastro-enterostomy as a routine procedure after various operations on stomach or bowel.

Rivista Critica di Clinica Medica, Florence

July 25, 1921, **22**, No. 21

*The Umbilicus Sign. S. Pisani.—p. 241.
Test for Lactic Acid. F. D'Arbela.—p. 244.

The Umbilicus Sign.—Pisani explains the diagnostic significance of traction on the umbilicus from pathologic conditions in the vicinity. The traction is not direct. With gastroptosis, for example, the sagging stomach drags on the lesser omentum, and this in turn on the liver. The latter pivots on its transverse axis, and this pulls on the ligaments and draws up the umbilicus, making more prominent the fold of skin on the top while flattening out the fold at the bottom.

Archivos Latino-Amer. de Pediatría, Buenos Aires

May-June, 1921, **15**, No. 3

Tributes to Prof. L. Morquio.—p. 177.
*Fever from Pyelitis in Infants. Olaran Chans.—p. 198.
*Buttermilk in Infant Feeding. E. Gaing.—p. 201.
*Lymphosarcomas in Children. J. M. Macera.—p. 206.
Prenatal and Infant Welfare Work. J. Sanchez.—p. 217.
*Anthrax in Children. M. A. Lasala.—p. 222.
*Chronic Hemorrhagic Purpura. J. Bonaba.—p. 226.
Intraspinal and Mediastinal Hydatid Cyst. P. de Pena.—p. 230.
*Cerebellar Tuberculoma. L. Valabrega.—p. 235.
*Prognosis in Meningitis. E. Caprario.—p. 240.

Pyrexia in Infants Due to Pyelitis.—Olaran Chans has often found that fever in infants for which no cause was evident on clinical examination, was explained at once by analysis of the urine. Pus and a little blood locate the causal process in the kidney pelvis. When the kidney proper is involved, albumin and tube-casts are found. Almost invariably such children are bottle fed, and the colon bacillus is responsible for the pyelitis. In one artificially fed infant of 11 months the temperature ran up to 42.1 C. (107.8 F.). Under treatment with tepid baths, breast milk exclusively, cupping, and hexamethylenamin internally (a teaspoonful every three hours of a 1 per cent. solution), recovery was complete in a week. The stools were normal throughout. This infant has had four returns of the pyelitis since, but never with such high fever. Salol can also be given, or potassium citrate to combat the acidity of the urine. Two or three enemas a day of 1:3,000 methylene blue may also be given, but hexamethylenamin is the main reliance.

Buttermilk for Infant Feeding.—Gaing ascribes the "unsurpassable results" he obtains with buttermilk in infant feeding to his mode of preparation, using only separator cream for it, allowing it to stand for twenty-four hours and after churning out the butter bringing it slowly to boiling, stirring constantly with a cream whip. One or two tablespoonfuls of sour cream from the day before are added to the cream before it is set aside.

Lymphosarcoma in Child.—The large growth in the boy of 6 was in the duodenum but had invaded the pancreas. It proved fatal in twenty-seven days after the first symptoms.

Anthrax in Children.—In the five cases described the lesions were on face or neck, and were all benign, as usual in children.

Chronic Purpura.—The girl of 6 had hemorrhagic purpura and for two years afterward it recurred from time to time. Notwithstanding the hemorrhages the child passed apparently unharmed through typhoid, measles and influenza. She seems now, at 9, to be clinically cured, having had no hemorrhages for a year. Cauterization of the nose had cured the tendency to recurring epistaxis.

Tuberculoma of the Brain.—Valabrega found the tumor, as anticipated, in the cerebellum of the boy of 6. Other signs of tuberculosis had suggested its nature.

The Prognosis in Meningitis.—Caprario found 96 per cent. polynuclears and 4 per cent. lymphocytes, among the 490 leukocytes per c. mm. but no micro-organisms, in the lumbar puncture fluid of the boy of 8 with the pronounced clinical picture of meningitis. Two weeks later the fluid was clear and recovery soon complete. The albumin content of the fluid was not above normal at either puncture, and the leukocytes had their normal outline. It is the second case in his experience of rapid cure with up to 3,160 leukocytes per c. mm., 97.5 per cent. polynuclears, and no micro-organisms found in the puncture fluid.

Revista Mexicana de Biología, City of Mexico

August, 1921, **1**, No. 6

*Physiology of the Testicle. F. Ocaranza.—p. 229.
*Relations Between Comparative Neurology and Psychology. I. Ochoterena.—p. 252.
Evolution and Involution of Nervous System. Idem.—p. 262.
*Mexican Protozoa. Idem.—p. 267.

Physiology of the Testicle.—Ocaranza relates that the number of erythrocytes first dropped and then ran high after removal of one or both testicles in seven guinea-pigs. The figure finally settled back to the preceding figure or kept permanently above normal. His research was continued for six months on each animal, but nothing was found abnormal in respect to weight, chest or abdomen measure, or temperature after the first. He cites Lipschütz and Ottow's recent announcement that one sixteenth of normal testicle in mammals is enough to provide for normal development.

Comparative Neurology. — Ochoterena emphasizes the importance of comparative neurology for the understanding of human psychology and especially for training the young. The human cortex is a recent addition to the brain proper which is common to all vertebrates. The latter is the animal in every human being, and its voice is heard even in the infant and it intervenes in every action throughout life. All education, all training of the young should utilize the instinctive curiosity of the animal brain, discipline it, and balance by other activities what can never be extirpated, namely, anger, fear and sexual impulses. The structure of this brain, common to all vertebrates, limits the liberty of the individual, and ethical and social ideals can prevail only when they do not conflict with the law of evolution of the universe.

Mexican Protozoa.—Ochoterena discusses here the biology of trichomonas.

Revista Médica del Uruguay, Montevideo

July, 1921, **24**, No. 7

*Epidemic Encephalitis. B. Etchepare.—p. 277.
*Juvenile General Paresis. W. Martinez.—p. 285.
Hemoplastin. P. J. Martino.—p. 289.
Treatment of Diphtheria. L. Morquio.—p. 293.

Epidemic Encephalitis.—Etchepare's patient developed the disease with a confusional state at first, suggesting general paresis as the pupil reflexes were sluggish and there were certain motor disturbances in the young prostitute. The progressive increase in the glucose content of the cerebro-

spinal fluid to 1 gm. was a striking feature of the case, as it has persisted during the five months to date since recovery. His illustrations show the woman placidly sleeping when sitting or standing or reclining. The somnolency persisted for five months; whenever she was left to herself she slumbered. Etchepare then made an intraspinal injection of 10 c.c. of her own blood serum, and great improvement was evident by the fifth day, and in three weeks more the cure seemed complete. He states that he had a brilliant success with this autoserotherapy in another case of lethargic encephalitis. In the discussion that followed, Duprat reported notable benefit in a number of cases from intraspinal injection of 10 c.c. of a 10 per cent. solution of hexamethylenamin. In one man with slight ptosis, pains, impaired vision and vomiting, the presumptive diagnosis was a brain tumor. Glucose to 0.7 or 0.8 gm. was evident in the spinal fluid, and after an intraspinal injection of 1 gm. of hexamethylenamin the symptoms all vanished. The injection was always followed by a febrile reaction for a few hours. In this latter case the man has had no further symptoms during the year to date.

Juvenile General Paresis.—Martinez' patient had an alcoholic father and syphilitic mother, but the onset of the general paresis so early—the picture was complete at 17—was probably connected with the injury from a street car accident to the skull.

Semana Médica, Buenos Aires

June 16, 1921, **28**, No. 24

*Origin of Keratoconus. O. Wernicke.—p. 693.
*Operative Treatment of Genital Prolapse. E. A. Fox.—p. 696.
*Tests for Aviation Candidates. A. Milano.—p. 697.
*Treatment of Febrile Abortion. W. Latzko.—p. 709.
*Hemolysis in Ileus. A. B. Ribeyrolles.—p. 714.

Origin of Keratoconus.—Wernicke tears the mask of keratoconus from multiple sclerosis. The assumption of underlying multiple sclerosis would also explain the features of glaucoma better than anything else, he says, and he urges others to look for this association. The nervous system, etc., should be examined with special care at necropsies of persons with these two eye diseases.

Operative Treatment of Uterovaginal Prolapse.—Fox has applied Bumm's method of colli fixatio uteri and has been much gratified with the results to date. The cervix is drawn up and fastened to the tendon portion of the rectus muscles. This does not interfere with pregnancy later, but Fox thinks that the pressure on the pouch of Douglas is too much of a strain, and hence he does not advise this technic except when other methods are contraindicated.

Tests of Candidates for Aviation.—Milano gives an illustrated summary of the methods in vogue in Italy.

Febrile Abortion.—Bermann has translated a still unpublished work by Latzko on this subject. He regards fever as a formal contraindication against curetting the uterus. If the practitioner is unable to enforce bed rest in his expectant treatment, he must insist on the woman's going to the hospital in every grave case of febrile abortion.

Hemolysis in Ileus.—The research on dogs reported by Ribeyrolles supplements his clinical study of the serum in cases of intestinal obstruction. Everything sustains the assumption that the hemolysis is the work of toxins resorbed from the intestines.

June 23, 1921, **28**, No. 25

*The Herxheimer Reaction. D. Speroni.—p. 725.
*The Aid Given by North Americans to Children in Austria. J. C. Navarro.—p. 727.
*Extramembranous Pregnancy. G. F. Costa.—p. 731.
Vaccine Therapy of Fibrous Pneumonia. C. E. Pico.—p. 740.
Proposed Dental Nomenclature. E. Amato.—p. 747.
*Disease in Centers of Musical Language. V. Ribón.—p. 748.

The Herxheimer Reaction.—Speroni utilizes the Herxheimer reaction in diagnosis of syphilis. Just as a small injection of tuberculin activates the tuberculous process in any organ, the same focal reaction is evident in syphilis after injection of a small dose of neo-arsphenamin. The great resemblance between tuberculosis and syphilis, and their identical manner of responding to their specific treatment, render this test injection of neo-arsphenamin dependable, like an injection of tuberculin in tuberculosis, he says.

North American Aid for Children in Austria.—Navarro describes in detail the "actual miracle that has been accomplished in Austria by the combination of Yankee philanthropy and the Austrian spirit of organization." The work was partly described in THE JOURNAL, July 31, 1920, p. 332.

Extramembranous Pregnancy.—Costa remarks that nothing but an extramembranous pregnancy will explain the discharge of a clear or blood-stained fluid from the genitals during a pregnancy, the discharge keeping up more or less continuously and debilitating the woman. The uterus is found small, out of proportion to the stage of the pregnancy, and the development of the fetus is defective and delivery difficult, owing to the lack of amniotic fluid. Six such cases are described in detail. Two of the pregnancies proceeded to term with birth of apparently normal infants except that the foot of one was twisted. The other cases all terminated in spontaneous or therapeutic abortion. Treatment can be only expectant as a rule, warding off congestions and fatigue, taking the temperature twice a day, and emptying the uterus if there are the slightest signs of infection, or the anemia becomes menacing after the premature rupture of the amnion or chorion.

Disease in Music Centers.—Ribón compares the literature on aphasia and amusia, hypermusia and paramusia, citing a number of interesting examples and discussing the organic basis.

July 7, 1921, **28**, No. 27

*Brain Tumor and Pseudocyst. Mariano Alurralde.—p. 1.
*Foreign Body Stools in Infants. C. R. Castilla.—p. 7.
*Bone Grafting in Pott's Disease. A. Gutiérrez.—p. 11.
*Deep Roentgenotherapy. R. Espinola.—p. 15.
Tuberculin in Prophylaxis. F. Jauregui and L. Sivori.—p. 18.
*Glaucoma and Multiple Sclerosis. O. Wernicke.—p. 21.

Cystic Brain Tumor.—As Alurralde explains, the case in a boy of 10, which he reports, teaches the remarkable tolerance of the brain for slowly growing, fluid filled tumors. The necropsy confirmed his diagnosis of a cystic tumor of the left hemisphere in the region of the temporal lobe, probably close to the ventricle. The right ventricle was also enormously distended, an actual pseudotumor or pseudocyst in this ventricle.

Foreign Body Stools.—Castilla has noted that the diapers are characteristic when a healthy baby has swallowed a foreign body, although the clinical manifestations may range from zero to severe meningism. When an infant in the midst of health begins to vomit and becomes fretful, with other signs of disturbance that do not yield to the ordinary measures, discovery of the foreign body stools will give the clue. The stools are numerous but bunched; there will be four or five in a short time and then a free interval of six or eight hours, but during the day there may be about fifteen or twenty. The stools are serous and scanty, preceded by gases, and each one weakening the infant, the temperature dropping, and the child becoming chilly and sweating, and then dropping to sleep. Occasionally there may be a compact stool. The characteristic feature of the foreign body stool is a spot in the expanse of stool which is free from the ordinary fecal matter, the cloth showing through at this spot. The difference in the aspect of this serous patch and of the well digested rest of the stool is as marked, he says, as the difference between a water color painting and an oil painting. Hence he calls this the aquarelle stool sign of a foreign body. The patch may or may not differ in color from the rest of the stool.

It is important to warn mothers against allowing the infants a chance to get in their mouth a scrap of wool or fur from a blanket or robe or garment, a hair or a thread, as this class of foreign bodies is particularly hard to expel. Scraps of paper and cork pass off more readily, and a scrap of waxed paper, of a pea-pod, etc., is usually easily expelled. Infants' lips are always moist and the hand is carried constantly to the mouth, and scraps of wool and thread and fur from blankets, cap or other garment touching the face easily get into the mouth. The resulting disturbance may be ascribed to indigestion or teething. Even after expulsion of the foreign body, the characteristic stools from the irritation may continue for a day or two. Castilla warns that if there is much debility, the child suffering from loss of fluids, it is better not to purge until this is corrected. He advocates saline infusion, with or without epinephrin, small doses of castor oil, baths, etc., instead of a vigorous purge, and says that

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children who have had these foreign bodies relatively frequently, and have even reacted with brain symptoms, yet have developed perfectly since.

Bone Grafting in Pott's Disease.—Gutiérrez used a rib resected from another patient to allow access to a cyst in the lung. The curve of the rib was an advantage in the special case described, in a woman of 28. The graft had been kept in physiologic salt solution for two weeks before it was implanted. The operation was a complete success, relieving the pain and restoring function to the spine. The Albee technic was not followed on account of the lack of the special instruments, but the outcome could not have been better. Two months after the operation she could stoop to the floor.

Deep Roentgen-Ray Treatment of Cancer.—Espinola comments on the revolution in roentgenotherapy which followed the invention during the war of a generator which produces over 200,000 volts. This was followed by the Fürstenau-Coolidge tube which can stand this voltage without harm. In Germany the rays are measured with an iontoquantimeter or electroscope as a rule.

Glaucoma as Manifestation of Multiple Sclerosis.—Wernicke's suggestion that keratoconus and glaucoma are an intra-ocular manifestation of multiple sclerosis has already been mentioned in these columns. We know that multiple sclerosis is the most frequent cause of retrobulbar neuritis, and the clinical picture of glaucoma shows many analogies, as he explains.

Siglo Médico, Madrid

June 18, 1921, **68**, No. 3523

Three Year's Experience with Luminal in Treatment of Epilepsy; Nine Cases. C. Juarros.—p. 573.
*Protein Therapy with Optic Neuritis. M. Marin Amat.—p. 575. Conc'n in No. 3524.
Eczemas. Sicilia.—p. 578.

Protein Therapy.—Marín Amat reports the rapid cure after parenteral injections of milk in a case of intense intra-ocular optic neuritis or papillitis, with total amaurosis of the one eye involved.

July 9, 1921, **68**, No. 3526

*Recurrence of Malaria After Splenectomy. R. Jiménez and G. Pittaluga.—p. 645.
*Treatment of Diphtheria. Martinez Vargas.—p. 648.
Gastro-Enterostomy Versus Gastrectomy. S. Carro.—p. 650.

Recurrence of Malaria After Splenectomy.—Summarized on p. 896 when published elsewhere.

Diphtheria in Spain.—Martinez Vargas relates that notwithstanding all the medical progress of the day there were 3,009 deaths from diphtheria in Spain during 1919, while the number was only 2,917 in 1905. The lack of recognition of the diphtheria in its early stages can be the only explanation of this increasing mortality. Diphtheria in the nose is particularly likely to be overlooked.

July 16, 1921, **68**, No. 3527

Disease in Centers for Musical Language. V. Ribón.—p. 669.
*The Hypogenital Hand. G. Marañón.—p. 672.
Uric Acid of the Blood. Chauffard.—p. 675. Conc'n No. 3528, p. 700.

The Hypogenital Hand, or Acrocyanosis.—Marañon is convinced that the vasomotor disturbances inducing the acrocyanosis are traceable to insufficiency of the genital glands, predominantly of the ovaries, and hence his term "hypogenital hand." There may be insufficiency of other endocrine glands, but the genital insufficiency is predominant and constant. A glimpse of the congested cyanotic, clammy hands is enough to suggest genital infantilism; the hands are usually puffy and doughy, and the nails are often spotted. The age is between puberty and maturity or at the menopause, and the subjects are usually females. Time and organotherapy are the reliance in treatment, especially intensive and prolonged ovarian treatment. Heliotherapy has also yielded excellent results in his hands, both for acrocyanosis alone or associated with tuberculosis or other chronic infection.

July 23, 1921, **68**, No. 3528

*Ptosis of Cecum and Kidney. P. Chutro (Buenos Aires).—p. 693.
*Steinach's Rejuvenation Operation. A. Lorand.—p. 697.

Ptosis of the Cecum and Right Kidney.—Chutro explains how the kidney is dragged down by a large heavy cecum. As the ptosis progresses, traction on the ligaments pulls on the biliary apparatus besides. Reflex gastrosuccorrhea may be entailed. Although the symptoms from these disturbances may be numerous and different, the aspect of these patients is always much alike. They are usually young, pale, with acne, constipation and poor appetite, and borborygmus. The physician pays little heed to these symptoms, and the consequence is that 80 per cent. of all women have signs of constipation and more or less sagging of the right kidney. The most common mistake in these cases is to incriminate and treat the biliary apparatus as the one primarily at fault. The sagging kidney may induce symptoms resembling somewhat those of duodenal ulcer. The so-called "hunger-pain" is comparatively frequent from ptosis of the right kidney alone, but it may develop at once or long after a meal, and it is relieved by reclining, and this pain may alternate with actual neuralgia of the solar plexus, especially when there is much traction on the ligaments. Appendicectomy and fastening the kidney in place not only are ineffectual but actually aggravate conditions, for reasons which he explains.

When seen early, the ptosis may be corrected by organotherapy and posture, but as a rule the ptosis is recognized only when the symptoms show that conditions are beyond the medical stage. Fastening the cecum to the posterior parietal peritoneum has often sufficed to cure these young patients completely and permanently. If the cecum is much enlarged, a fold can be taken up in it. He has done this with five or six silk stitches on the last 10 cm. of the intestine, leaving the ends of the silk long enough to use to fasten the intestine to the posterior parietal peritoneum. If the mensentery is too long, this may have to be corrected. In cases with severe autointoxication, a preliminary course of bed rest, raising the foot of the bed for 25 or 30 cm., proctoclysis, and other medical measures may be necessary for a few months to recuperate tone. If the ptosis is general, operative measures are contraindicated and a supporting orthopedic corset should be worn after the course of a few months in bed. If conditions then actually require operative intervention, he has found that cecosigmoidostomy gives better results than joining the ileum to the sigmoid.

Rejuvenation Operations.—Lorand asserts that the results of recent research have confirmed his theory announced in 1904 that senility is the result of primary degeneration of all the ductless glands, not merely of the genital glands alone. He says that he has been very successful in arresting the onroads of the signs of senility by a combination of thyroid and genital gland extract treatment, especially in women. Menstruation returned in many cases of amenorrhea under this treatment, after a hiatus of three to six months. He always examined the pulse and heart every four or five days, and has never had any mishaps in the sixteen years he has been applying it. Sun baths and the vaporized mercury light baths proved useful adjuvants, along with moderation in eating. After 50, the sensation of a full stomach should be avoided at all costs, especially if there is arteriosclerosis.

Deutsche medizinische Wochenschrift, Berlin

July 14, 1921, **47**, No. 28

*Sterility in Women. G. Winter.—p. 797. Conc'n.
Catarrhal Jaundice. K. Retzlaff.—p. 798.
Acute and Subacute Atrophy of Liver. G. Lepehne.—p. 800.
Artificial Pneumothorax in Pneumonia. O. David.—p. 802.
Treatment of Interlobar Pleural Empyema. L. Böhm.—p. 803.
Surgical Adjustment of Malposed Bone Fragments. M. Katzenstein.—p. 803.
Skin Diseases and Their General Treatment. C. Bruck.—p. 806.
Experiences with Swimming Pool Conjunctivitis. W. Comberg.—p. 809.
Grave Hemorrhages After Expulsion of Placenta. Blumreich.—p. 810.

Causes and Treatment of Sterility in Women.—Winter states that corpulence in women is without doubt closely connected with sterility. He quotes Kisch who, in his Marienbad practice, found in a series of 215 women with pronounced obesity forty-eight cases of sterility, or 22 per cent., as compared with the average 10 per cent. The cause lies rarely in mechanical disturbances of conception due to accumulations of fat about genitalia, or in sexual frigidity, which is common in such women, but is rather to be sought in a disturbed functioning of the ovaries, which through lack of ovarian hormones leads to an accumulation of fat, resembling the formation of fat during the climacteric. Therefore,

disturbances of menstruation are often found associated with lipomatosis. A previous instalment of Winter's long study of sterility was summarized, p. 977.

Deutsche Zeitschrift für Chirurgie, Leipzig

July, 1921, **164**, No. 4-6

*The Vegetative Nervous System and the Blood Picture. F. Breuer.—p. 225.
*Fracture of Vertebrae. A. Mülleder.—p. 269.
*Flail Joints. K. von Dittrich.—p. 315.
*Plaster Extension for Fractures. E. Birt.—p. 328.
*Gastric and Duodenal Ulcer. H. Zoepffel.—p. 342.
*Enterostomy in Postoperative Ileus. W. Vollhardt.—p. 352.
Tests of Antiseptics on Animals. M. Feiler.—p. 379.
*Strangulation of Small Intestine by Tube. E. Boerner.—p. 392.
*Racemose Arterial Angioma. E. Schwarz.—p. 408.
Perforation of Nondistended Intestine. A. Nägelsbach.—p. 424.

The Vegetative Nervous System and the Blood Picture.—Breuer comments on the constantly increasing importance of the blood as an index of vital processes. In constitutional diseases the blood shows changes which seem to suggest an abnormal influence on the vegetative nervous system, possibly from the endocrine glands. Lymphocytosis is the rule in constitutional diseases. The influence on the vegetative nervous system from the neurotropic products of bacteria also has to reckoned with. Tuberculosis is usually a mixed infection, which explains the variable blood findings. It is both an infectious disease and a constitutional disease, he reiterates, and lymphocytosis can be the expression of either. Pilocarpin elicits a more pronounced response when there is lymphocytosis. As the disease progresses, the balance in the vegetative nervous system tends toward the autonomic side, the autonomic system becoming more irritable. He tabulates the blood findings after epinephrin, pilocarpin and atropin tests, in fifteen cases of surgical tuberculosis. The methods of investigating the vegetative nervous system are still very imperfect. This is the more to be regretted as this system may prove to be the key to explain many constitutional conditions.

Fracture of Vertebrae from Contusion.—Mülleder reviews the results of treatment for these injuries applied in forty-seven cases in Eiselsberg's service during the last thirteen years. The list includes five children over 4 and fourteen women. The Albee bone graft promises to give better results than any yet attained. The operation should follow as soon as possible when the cord seems to be injured with fracture of thoracic vertebrae. He regards isolated paralysis of the bladder and the Bruns-Bastian set of symptoms as contra-indicating intervention. A removable supporting corset should be worn for six months after taking off the plaster corset, worn for two or three months. Exercises under medical supervision are indispensable, and a Förster operation should be considered with spastic paralysis from injury of vertebrae. There is considerable hampering of movement after fracture of vertebrae, and reduction of earning capacity even at the best. The disability is complete for a year at least. The course in several typical cases is described in detail.

Flail Joints.—Dittrich expatiates on the fine results attainable by loosening up and separating the muscles and drawing skin down to cover all the exposed parts; then a cuff is worn on the region above and another on the region below, a connecting hinge contrivance providing an artificial joint in the usually right angled gap. This is Götze's method, and Dittrich has applied it, among others, in four cases of war wounds of the elbow with considerable loss of bone.

Plaster Extension for Fractures.—Birt's experience with seventeen cases confirms the special advantages of this method of treatment, for compound fractures in particular.

Gastric and Duodenal Ulcer Operations.—Zoepffel urges the necessity for reducing secretion of hydrochloric acid as an indispensable element in treatment of ulcer. The organism seems to adapt itself perfectly to this artificial achylia which, he says, follows removal of the pylorus. He argues that the contact of the food with the pyloric mucosa is the main stimulus for secretion of gastric juice. The ulcer should be resected at the same time. He has applied the Billroth II method in twenty-eight cases on the foregoing reasoning, and thinks that his experience has amply demonstrated the essential advantages and success of this mode of inducing achylia, and thus theoretically warding off danger of recurrence and of peptic ulcer.

Enterostomy in Postoperative Ileus.—Vollhardt's experience in fifteen cases confirms that outside of tracheotomy there is scarcely any operation that is so directly life-saving as this.

Ileus from Foreign Body.—The small intestine was found strangulated by the fallopian tube and a diverticulum in which was discovered a gauze compress. The girl of 15 had had the appendix removed a year before.

Racemose Arterial Angioma.—In the case described the angioma had developed on the thigh of the man of 45.

Medizinische Klinik, Berlin

July 10, 1921, **17**, No. 28

*Modern Problems in Gynecology and Obstetrics. L. Seitz.—p. 831.
The Practitioner and Treatment of Syphilis. Buschke.—p. 834. Conc'n.
Bacteriemia and Its Import. K. Bingold.—p. 838.
Desiccated Milk in Infant Feeding. Neuland and Peiper.—p. 841.
*Protein Therapy in Infants. B. Epstein.—p. 842.
Congenital Drumstick Fingers. E. Lewy.—p. 845.
Symptoms from Striated Body in Encephalitis. W. Leibbrand.—p. 848.
Opsonic Index for Staphylococci in Scabies. W. Löwenfeld.—p. 849.
Otosclerosis. K. Grabe.—p. 851. Cont'n.

The Questions of the Day in Gynecology.—This is Seitz' inaugural address on assuming the chair of gynecology and obstetrics at Frankfurt a. M. His roentgen-ray work that has attracted so much attention was done at Erlangen. He remarks that the last twenty years have almost revolutionized obstetrics by the knowledge that the placenta is a complex organ, modifying albumin and fats; also the perfecting of cesarean section. The extraperitoneal incision on the lower segment has rendered obstetrics much more conservative, as we now can placidly wait to the very last limit for spontaneous delivery. But the greatest progress in the pathology of women has been realized with radiotherapy. Functional uterine hemorrhage, of ovarian origin, can be certainly arrested with 34 per cent. of the skin unit dose. After shutting off ovarian functioning in this way for a few months to a year and half, the ovaries resume their physiologic task again after the temporary castration. The way in which myomas stop bleeding and retrogress under the roentgen rays suggests that they, too, are due to some substance generated in the malfunctioning ovaries, the supply of which can be shut off in this way. Radium treatment of uterine carcinoma now has a record of 20 per cent. cured for five years to date, which is the same average realized by surgical measures. But deep roentgen-ray treatment, he continues, accomplishes more than this. He has a record of numerous cases with an interval since of two years without recurrence. Of fifty-eight cases of cervical cancer, given combined radium and roentgen treatment with an interval since of five years, from 12 to 20 per cent. are still living. With the method of six or seven cross-fire fields attacking the primary tumor at one sitting, and the parametrium at a second and third sitting, the carcinoma cells can be killed almost regularly. The ulcerating tumor retrogresses completely in five or six weeks, and no further traces of it can be detected even with the microscope in excised scraps a little later.

Protein Therapy for Infants.—Epstein declares that the defective functioning of the defensive forces in the prematurely born and in infants with the severest form of pedatrophia offer the most promising field for protein therapy. This treatment activates the defensive forces, and his experience with seven cases described in detail shows that it is harmless for infants in the form he used, namely, repeated daily injections of from 0.5 to 2 c.c. of normal horse serum or sheep serum. The vitality showed the effect promptly, and the weight began to increase at once. All were feeble, prematurely born or debilitated, but without infectious processes, the lack of vitality, the hypofunctioning of the cells, the cause of the pedatrophia.

Monatsschrift für Kinderheilkunde, Berlin

May, 1921, **21**, No. 2

Theory as to Origin of Salt Fever. A. Hirsch and E. Moro.—p. 129.
Hereditary Syphilis in Second Generation. Bernheim-Karrer.—p. 130.
Hydrogen-ion Concentration in Stomachs of Infants in Acute Disturbances of Nutrition. E. Hainiss.—p. 134.
Suppuration in Urinary Passages in Childhood. Mautner.—p. 145.
An Eye Symptom in Tetany. K. Ochsenius.—p. 151.
Chronic Myelogenic Leukemia in Three Children. Langsch.—p. 152.
*Epidemic Encephalitis in Childhood. O. Voigt.—p. 156.
Paralysis of Respiratory Organs in Infancy. Haberkamp.—p. 163.
Cholesterin Content of Blood in Chickenpox. E. Wentzler.—p. 165.
Diphtheria Bacilli in Nose in Childhood. H. Opitz.—p. 170.

Epidemic Encephalitis in Childhood.—Voigt reports five cases and ascribes his success in the treatment of Cases 1 and 2 to frequent lumbar puncture. In both cases, after each puncture, a marked remission of the acute manifestations occurred, which was followed by a drop in the temperature during the next few days, so that a repetition of lumbar puncture was always strongly indicated, until finally when defervescence was accomplished also the acute clinical symptoms disappeared. In addition to lumbar puncture, he prescribed hexamethylenamin and salicylates.

Münchener medizinische Wochenschrift, Munich

July 15, 1921, **68**, No. 28

*Invisible Stage in Life of Protozoa. R. Kraus, et al.—p. 867.
Predisposition to Lung Gangrene. H. Schridde.—p. 868.
Effect of Inflammation on Nervous System. H. Groll.—p. 869.
Septic Form of Stomatitis. P. Widowitz.—p. 871.
Treatment of Streptococcus Empyema. P. Erlacher.—p. 872.
Disappointing Late Results of Friedmann Treatment of Surgical Tuberculosis. J. R. Gossmann.—p. 873.
Effect of Collargol. A. Böttner.—p. 876.
Trephining in Acute Hematogenic Osteomyelitis. T. Naegeli.—p. 877.
Treatment of Acute Osteomyelitis. P. G. Plenz.—p. 879.
Significance of Position in Lung Examination. Hildebrandt.—p. 880.
Effect of Roentgen Rays on Mitosis in Carcinoma Tissue and on the Blood Vessels. A. Reichold.—p. 881.
Apparatus for Passive Exercise of Leg. L. Böhler.—p. 881.
Perforation of Uterus and Intestinal Injury from Attempt at Abortion on Nonpregnant Woman. H. H. Schmid.—p. 883.
Red Blood Corpuscles in Darkfield Illumination. E. Salén.—p. 885.
Prosthesis for Kineplastic Amputations. Schlesinger and Meyer.—p. 886.
Diabetes in Relation to Surgery. A. Krecke.—p. 887.

Invisible Stage in Life of Protozoa.—Summarized when published elsewhere, Sept. 3, 1921, p. 822.

Therapeutische Halbmonatshefte, Berlin

May 15, 1921, **35**, No. 10

Blood Transfusion. F. Balboa.—p. 289.
Epilepsy and the Suprarenal Glands. A. Brüning.—p. 297.
Accurate Drug Administration. E. Fuld.—p. 301.
Syphilis in the Pregnant. L. Preuss.—p. 306.
*Endolumbar Treatment of Syphilis. W. Jacobi.—p. 307.

Intraspinal Treatment of Syphilis.—Jacobi reports two fatalities following endolumbar injection of sodium arsphenamin by Gennerich's technic. Necropsy showed severe irritation with hemorrhages in the pia.

Wiener klinische Wochenschrift, Vienna

July 14, 1921, **34**, No. 28

1. Removal of Cystadenoma from Pancreas and Implantation of the Pancreatic Duct in the Stomach. II. Advanced Carcinoma of Gallbladder, Cured Three Years Ago. H. Lorenz.—p. 339.
*The Subphrenic Abscess. F. Kovács.—p. 340.
Esophageal Stricture. G. Lotheissen.—p. 342.
Intravenous Therapy and Effect of Intravenous Injections of Hypertonic Solutions. K. Stejskal.—p. 343.
Methods of Determining Coagulation Time of Blood. A. Frisch and W. Starlinger.—p. 344.

Subphrenic Abscess.—Kovács recommends that if the diagnosis "subphrenic abscess" is assured and localization of the abscess is possible, the patient should receive surgical treatment as soon as possible. The method of choice is that used for the empyema operation—the so-called transpleural operation—opening of the abscess cavity combined with rib resection and followed by drainage. Whether general or local anesthesia should be employed will depend on the general condition of the patient. In those cases in which the inflammatory process is beneath the thorax in the epigastrium or the lumbar region, which fact is recognized by the accentuated local manifestations, the incision is made at those points. The prognosis of surgical intervention is in general not unfavorable, but success will depend not only on the nature of the fundamental affection and the general condition of the patient at the time of the operation, but on whether the opened abscess cavity is the only one or if not whether neighboring cavities can be opened from it. If other peritonitic abscess cavities or multiple abscesses of the liver still persist unopened, the prognosis is of course less favorable. But even though the local problem seems successfully solved by the operation, complications may still arise that will lead to a fatal issue. In any event, the percentage of cures effected by operative intervention is large—vastly larger than the very small number of cases that have turned out favorably when operation was neglected.

Zeitschrift für Tuberkulose, Leipzig

July, 1921, **34**, No. 6

*Pneumothorax Treatment of Pulmonary Tuberculosis. C. Saugman.—p. 425.
*Tuberculosis of the Sphenoid Bone. H. Kurzak.—p. 433.
*Tuberculosis at German Medical Congress. Simon.—p. 443.

Pneumothorax Treatment.—A similar communication from Saugman was summarized, March 26, 1921, p. 903. His material has increased in the interim from 400 to 530 cases.

Tuberculosis of the Sphenoid Bone.—Kurzak gives the details of a case in which a tuberculous process in the sphenoid bone was responsible for retrobulbar injury of the optic nerve in the young man. He died in a few days after bilateral evacuation of pus in the sphenoidal sinus. The fatal outcome was ascribed to sepsis, but necropsy revealed the tuberculous process in both bone and sinus. He compares with this case six from the records in which there was a tuberculous process in the sphenoid bone or pituitary (both in three cases); and thirty-four in which the pituitary alone was the seat of tuberculosis. In the seven sphenoid cases there were always signs of tuberculosis in other organs.

Tuberculosis in Recent Medical Congresses.—The discussions on the natural healing tendency and other aspects of tuberculosis at the recent German Congress of Internal Medicine and German Tuberculosis Congress are reported with some detail.

Zentralblatt für Chirurgie, Leipzig

July 16, 1921, **48**, No. 28

*Arthrodesis in Hip Joint Disease. M. Kappis.—p. 990.
Surgical Treatment of Intractable Furunculosis of Axilla. H. F. Brunzel.—p. 991.
Free Transplants of Testis. H. F. O. Haberland.—p. 993.
Aseptic Resection of Rectum. A. v. Rothe.—p. 994.
Character of Urine Obtained by Ureter Catheter. Pfaumer.—p. 995.
Plastic Tamponade of Bleeding, Hard Gastric Ulcer. Brewitt.—p. 996.

Arthrodesis by Implantation of Strip of Bone Close to Joint in Tuberculosis of Hip Joint.—Kappis recalls that tuberculous coxitis, if it heals at all, usually leaves a certain stiffness in the joint; sometimes the position is good but often enough it is bad; occasionally a flail joint results. Most surgeons, however, for various reasons, do not like to perform hip joint resection. So-called para-articular arthrodesis appears, therefore, justified as a midway position to take between operative and conservative treatment of tuberculous coxitis. A strip of bone is implanted between the trochanter and the crest of the ilium, whereby the joint is stiffened, with a view to shortening the period of treatment and the duration of the healing process, and thus get the patients back on their feet as soon as possible. Kappis has performed this operation eight times since August, 1920, with good results in each case. The pains disappeared at once. The patients could get up and walk in two weeks, wearing still a small bandage, and in five or six months they could discard all supports, and remained free from pain.

Zentralblatt für Gynäkologie, Leipzig

July 9, 1921, **45**, No. 27

Etiology of Reduplication of Female Genitalia. F. Lichtenstein.—p. 949.
Cause of Uncontrollable Vomiting in Pregnancy. M. Schwab.—p. 956.
Coil of Umbilical Cord About Arm of Child. G. Kaboth.—p. 958.
"Formation and Function of Corpus Luteum." J. Novak.—p. 960.
*Aorta Clamp in Postpartum Hemorrhage. B. Lörincz.—p. 962.
*Modification of Sehrt's Aorta Clamp. H. Becker.—p. 965.

Aorta Clamp in Postpartum Hemorrhages.—Lörincz has used Sehrt's instrument in several cases, and, while it has not fulfilled all expectations, he found it especially valuable in genuine cases of atonia uteri and in hemorrhage from a torn cervix. He does not use it unless the more common methods have failed. It may serve as an indicator in that it shows when manual intervention becomes necessary. Its use may be dangerous if the postpartum hemorrhage is caused by retained placental fragment. If the hemorrhage recurs after thirty minutes of continued compression of the aorta, the cause lies doubtless in a placental remnant, which must be removed. An illustration of the clamp appeared in THE JOURNAL, Feb. 28, 1920, p. 640.

Modification of Sehrt's Aorta Clamp and Its Use in Postpartum Hemorrhage.—Becker found at first Sehrt's aorta clamp successful in checking hemorrhage in only about half the cases. He discovered that the pad in the Sehrt instru-

ment was too hard. He increased the padding, whereby the effect was vastly improved. There are two illustrations of the modified clamp. He reports briefly twelve cases in which the aorta clamp was used.

July 16, 1921, **48**, No. 28

Paralysis of Facial Nerve in New-Born. H. Rossenbeck.—p. 981.
Observations on Duration of Gestation. P. W. Siegel.—p. 984.
Genesis of Hydrops Gravidarum. M. Beckman.—p. 995.
Supernumerary Ovaries and Their Tumors. B. Liegner.—p. 1000.
"Free Autogenous Peritoneal Transplants." A. H. Hofmann.—p. 1008.

Zentralblatt für innere Medizin, Leipzig

July 16, 1921, **42**, No. 28

*Pulse Pressure After Ingestion of Alcohol. P. Engelen.—p. 570.

Pulse Pressure Findings After Ingestion of Alcohol.—Engelen reports the results of experiments on 60 patients of both sexes of various ages and with various diseases, to show the effect on pulse pressure of a slight quantity of alcohol (10 c.c. for the habituated and 7.5 c.c. for the nonhabituated), ingested in a 50 per cent. dilution. For purposes of comparison, 52 subjects were given the dose in two different positions (lying and sitting, lying and standing, or sitting and standing). In 8 cases the findings were taken in three positions before and after ingestion of the alcohol. In one patient in the last stage of pulmonary tuberculosis there was no change of the systolic or the diastolic blood pressure, either in the recumbent or the sitting posture. In a man of 50 (used to alcohol) with sciatica, maximal and minimal pressure remained unchanged, in the recumbent position, but when standing the pulse pressure was lowered 10 mm. of mercury by the alcohol. In general, it was found that the ingestion of 7.5 to 10 c.c. of alcohol exerted no such marked pharmacodynamic effect on the circulation that any rule expressing the regularity of its influence could be established.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 25, 1921, **1**, No. 26

*Pirquet's Nem System in Dietetics. E. C. van Leersum.—p. 3466.
*Bovine Tubercle Bacilli in Surgical Tuberculosis. S. Poliakoff.—p. 3479.
Case of Goring of Abdomen. C. J. Albertyn.—p. 3485.
Case of True Melena. J. W. Napjus.—p. 3487.
Modern Views on Antibodies and Internal Secretion. J. Koopman.—p. 3489.
Housing Distress and Means to Remedy It. R. N. M. Eykel.—p. 3521.

The Nem System.—Van Leersum gives a detailed description of the Pirquet system and the index of nourishment, and their practical application. His final comment is, *plus ça change, plus c'est la même chose.*

Bovine Tubercle Bacilli in Surgical Tuberculosis.—Poliakoff's tables demonstrate that the proportion of cases of surgical tuberculosis is higher in the rural districts of the Netherlands than in the cities. This suggests possible infection with bovine tubercle bacilli, but in eighteen Amsterdam cases none but the human type could be cultivated from the surgical tuberculous processes. He urges research in this line by others.

July 9, 1921, **2**, No. 2

*Serodiagnosis of Carcinoma. N. Waterman.—p. 197.
*Roentgen-Ray Treatment of Goiters. G. F. Gaarenstroom.—p. 209.
Fine Medical Work in Netherlands India. S. Meihuizen.—p. 214.
*In Dubiis Age. O. Lanz.—p. 218.
*Fatal Bleeding from Varicose Vein on Leg. H. J. Schoo.—p. 219.
The American Institute of Medicine. W. S. Stekhoven.—p. 241.

Serodiagnosis of Cancer.—Waterman remarks that serodiagnostic tests for cancer have to contend with the fact that the apparently normal controls may have unsuspected cancer at the time. Another difficulty is that as the response is a chemical and physical phenomenon, it is generic rather than specific. He has been studying the miostagmin reaction in particular, and regards it as extremely important that the reaction is never positive in the healthy while it is usually positive with cancer of internal organs. The other conditions in which it is sometimes positive could scarcely be mistaken for a malignant growth. He used in his miostagmin tests a dog's pancreas and acetone-free alcohol. The modified stalagmometer records on a drum each drop as it falls. A still simpler method is now used by Izar which does not require a stalagmometer. The antigen is diluted 1:25 with alcohol and 1 c.c. is added to 0.5 c.c. of filtered distilled water. After standing one hour, 7 c.c. of 30 per cent. sodium chlorid is added. Then to 1 c.c. of the mixture, 0.2 c.c. of clear, nonhemolytic serum is added. The slightly opalescent fluid is then kept at 36.5 to 37 C. for from twenty-four to thirty-six hours. In the normal, the fluid persists unmodified; with malignant disease there is flocculation with precipitation, leaving the supernatant fluid clear. He tabulates the findings with the stalagmometer test in 108 clinical subjects: In all except five, the findings harmonized with the clinical course. The conflicting ones were in cases of diabetes, tuberculous peritonitis, enlargement of the prostate, or syphilitic disease of the liver. The difference in the findings with gastric ulcer and gastric cancer was most striking.

Roentgen-Ray Treatment of Goiter.—In the 15 cases reported by Gaarenstroom, 7 were of the exophthalmic type and 4 others were cancerous. In one other case the simple goiter was causing suffocation. In the simple and exophthalmic goiter cases, improvement under radiotherapy was the rule; the thyroid returned usually to normal size, and the disturbances of nervous, vascular and metabolic nature subsided more or less completely. In the malignant cases, one man of 41 has been free from all disturbances during the year and a half since the goiter retrogressed under the exposures. In the second case the cancer had already invaded the air passages and the patient succumbed. In the 2 other malignant cases the goiter rapidly retrogressed, and the men of 60 and 30 have been free from disturbance during the year and a half and six months since. It seems to be a simple matter to induce the retrogression of a cancerous goiter, as the tissues are exceptionally sensitive, and a cure may be counted on, he asserts, if there is no metastasis.

In Case of Doubt, Operate.—Lanz reports a case in which, to save the man from impending fracture of the femur from a metastatic sarcoma in the upper third, he enucleated the hip joint although regarding the condition as beyond all permanent relief. The sarcomatous kidney on that side had been removed two years before. The man has been free from all signs of malignant disease during the seventeen years since to date. Another patient with a mammary cancer was operated on eight times in the course of twenty years, and has had no recurrence since. A third patient, with malignant goiter, has been cured for ten years since the sixth operation in the course of twelve years.

Fatal Hemorrhage from Varices.—Schoo remarks that bleeding from a ruptured varicose vein is never treated by the laity as sensibly as a burst water pipe would be managed, but the principle is the same. In a case described, the elderly woman died from loss of blood while she was hunting for and applying cobwebs, etc., to arrest the bleeding.

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*Spondylosis Versus Spondylitis. G. E. Schrøder.—p. 951.
*Fracture of Cricoid Cartilage. H. O. Wildenskov.—p. 962.
Torsion of Hematosalpinx. M. F. Delmar.—p. 965.
Pin Perforates from Bronchus into Aorta. N. R. Christoffersen.—p. 971.
Case of Circumscribed Edema. L. Tarp.—p. 973.

Spondylosis Versus Spondylitis.—Schrøder compares the clinical picture and the course of a typical case of rhizomelic spondylosis with a typical case of spondylitis deformans. The pains, the aspect, the ankylosis seem to be the same in both, but the roentgen rays show the wide difference between these two pathologic conditions in the spine, even from their very incipiency. There is usually a history of some specific infection in the spondylosis cases; chronic latent gonorrhea seemed probable in the case described. Spondylitis deformans, on the other hand, seems to be a primary affection.

Fracture of the Cricoid Cartilage.—Wildenskov's patient was a girl of 10, and the bulging of the neck after the accident showed that the larynx had probably been ruptured. There was no dyspnea or cyanosis, but the cricoid cartilage was tender. High tracheotomy showed the sagittal rupture of the cricoid cartilage along the median line. A tracheotomy tube was introduced, and healing proceeded smoothly, the laryngoscope soon showing normal conditions. Isolated fracture of the cartilage is rare. Only six cases are known in children under 6, the elasticity of the tissues in children usually warding off fractures. If the mucosa is not torn, the symptoms are very slight. The patient should be brought immediately to the surgeon.

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